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November 28, 1995

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Sites Management Section  
Hazardous Materials Management Division  
Department of Environmental Conservation  
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SUBJECT: Contract No.: DACW33-91-D-0004  
Delivery Order No.: 012  
Final Site Inspection Prioritization Package  
Boise Cascade/South Landfill  
Sheldon Springs, Vermont  
TDD No.: 9401-62-CCX  
CERCLIS No.: VTD095247185

DOCUMENT NO.: 6101-012-ST-0118

Dear Mr. Schwer:

One copy of the Final Site Inspection Prioritization Package for Boise Cascade/South Landfill, in Sheldon Springs, Vermont is enclosed. If you have any comments or questions regarding this submittal, please contact me at (617) 742-2659.

Very truly yours,

CDM FEDERAL PROGRAMS CORPORATION

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Approved:

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TAT/lwd

Attachment

cc: Sharon Hayes, EPA Work Assignment Manager (letter only)  
Lisa Drake, CDM Federal Site Manager (letter only)  
Document Control File (letter only)

**Final Site Inspection Prioritization Report**

**Boise Cascade/South Landfill**

**Sheldon Springs, Vermont**

Prepared for

U.S. ENVIRONMENTAL PROTECTION AGENCY, Region I  
Waste Management Division  
Boston, MA

Delivery Order No.: 012  
CERCLIS No.: VTD095247185  
TDD No.: 9401-62-CCX  
Contract No.: DACW33-91-D-0004  
Document No.: 6101-012-FR-0116  
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## **INTRODUCTION**

CDM Federal Programs Corporation (CDM Federal), in coordination with the New England Division, U.S. Army Corps of Engineers (ACOE), was requested by the U.S. Environmental Protection Agency (EPA) Region I Waste Management Division to perform a Site Inspection Prioritization (SIP) of the Boise Cascade/South Landfill property in Sheldon Springs, Vermont. Tasks were conducted in accordance with ACOE Contract No. DACW33-91-D-0004, the SIP scope of work dated April 28, 1994, and technical specifications provided by ACOE under Delivery Order No. 012, which was issued to CDM Federal on July 20, 1994. A Preliminary Assessment (PA) was completed by the Vermont Department of Environmental Conservation (VTDEC) in February 1987. On the basis of the information provided in the PA report, the Boise Cascade/South Landfill Site Inspection was initiated. A Site Inspection (SI) report was completed by NUS Corporation on August 9, 1988. Updated information encountered during the SIP process is included in this report. Relevant text from the SI report is presented in this report in a smaller font.

Background information used in the generation of this report was obtained through file searches conducted at EPA, telephone interviews with town officials, conversations with persons knowledgeable of the Boise Cascade/South Landfill property, and conversations with other federal, state, and local agencies. Additional information was collected during the CDM Federal onsite reconnaissance on October 4, 1988 and environmental sampling on May 17, 1995.

This package follows the guidelines developed under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly referred to as Superfund. However, these documents do not necessarily fulfill the requirements of other EPA regulations, such as those under the Resource Conservation and Recovery Act (RCRA), or other federal, state, or local regulations. SIPs are intended to provide a preliminary screening of sites to facilitate EPA's assignment of site priorities. They are limited efforts and are not intended to supersede more detailed investigations.

## SITE DESCRIPTION

Boise Cascade/South Landfill (VTD095247185) is a privately-owned, inactive landfill located off Poor Farm Road in Sheldon Springs, Franklin County, Vermont (latitude 44° 53' 54.3" N, longitude 72° 58' 16.2" W). The landfill occupies approximately 8 acres on the western side of Poor Farm Road, less than 0.5 mile south of the village of Sheldon Springs and 2.0 miles northwest of the village of Sheldon (see Figure 1: Location Map) [12,58].

The landfill is located in a topographic transition zone between a ridge on the southeast and a gently sloping terrain on the northwest. Woodland abuts the landfill on all sides. The area surrounding the landfill is rural and wooded. Fewer than 10 residences are located within 0.5 mile; however, the Sheldon Elementary School and Sheldon Springs Well No. 2 are located 0.2 mile north of the landfill. Aerial photographs taken in 1978 indicate that the Sheldon area is heavily farmed. The photographs also show exposed areas (bare patches) that extend from the landfill into the surrounding woodland [42].

The surrounding terrain is dominated by the Missisquoi River and its tributaries. The river and streams have incised the terrain into a series of low northeast trending wooded ridges and valleys containing small streams and wetlands. . . [An unnamed tributary of the Missisquoi River] is located 500 feet west and downslope of the landfill. An unnamed . . . stream flows west along the northern margins of the landfill [42].

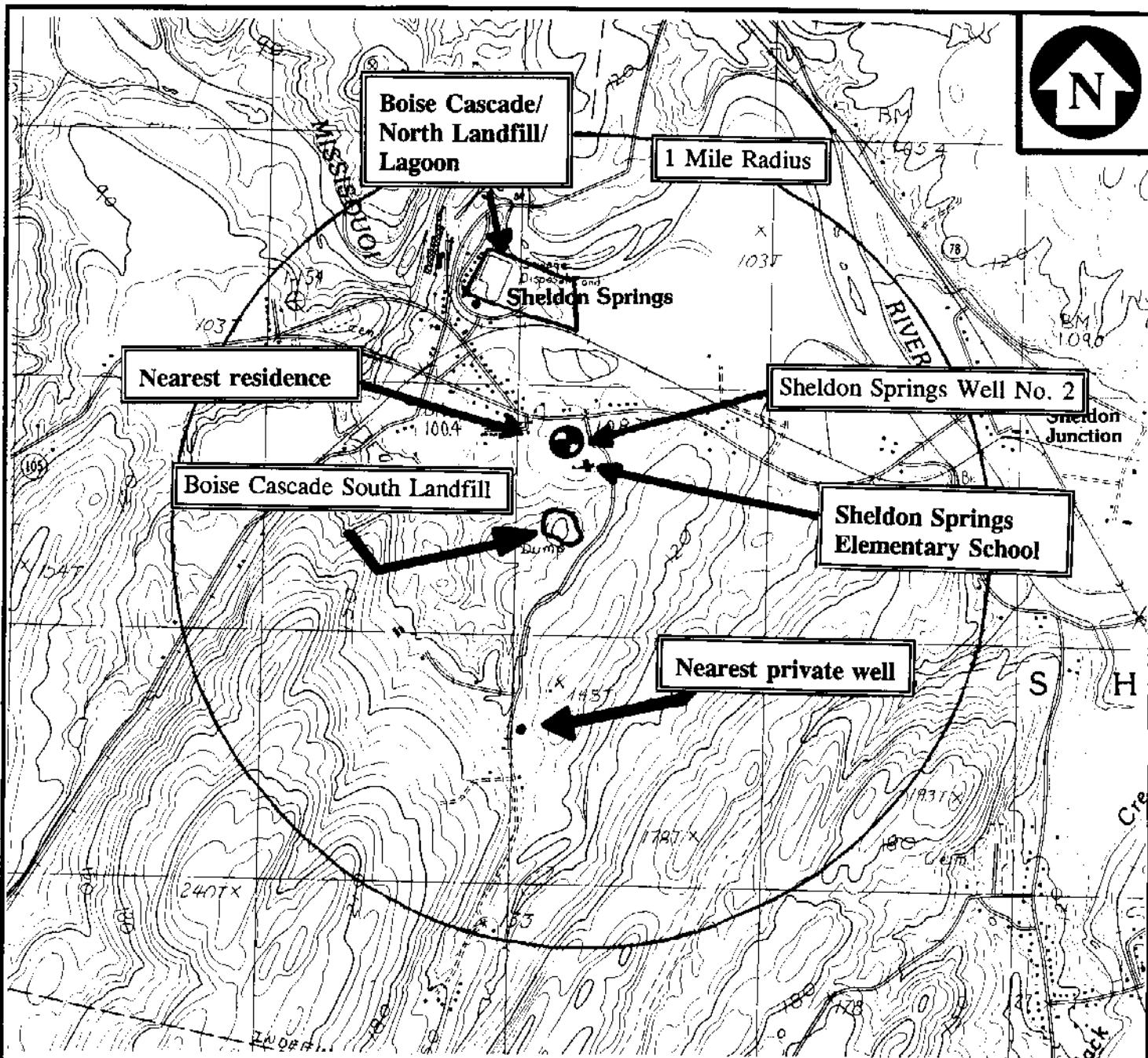
According to the Vermont Agency of Environmental Conservation's (VTAEC) Preliminary Assessment of Boise Cascade South (completed in February 1987), the landfill property was wooded prior to its use as a landfill. The area was described as having been a broad, shallow and wet lowland . . . [42].

Vehicular access is through a gate on the southeast side of the landfill on Poor Farm Road. A chain-link fence extends 150 feet on either side of the gate (see Figure 2: Site Sketch with Previous Sampling Locations) [42]. There are no buildings on the property. The entire property is unpaved. Surface water drainage from the landfill is radial, directing runoff primarily into the unnamed stream to the north of the landfill and into ponded areas to the south. Beaver dams are present along the unnamed stream north of the landfill; the dams create several small ponds along the northern perimeter of the landfill [13].

## OPERATIONAL AND REGULATORY HISTORY AND WASTE CHARACTERISTICS

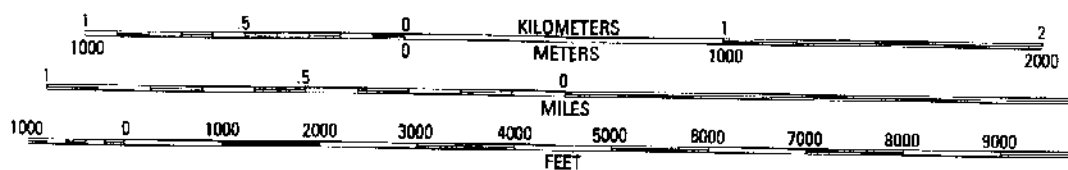
Boise Cascade Corporation is the current owner of the Boise Cascade/South Landfill property. From 1982 to 1989, Boise Cascade Corporation owned a paper mill facility in Sheldon Springs [32,42]. The Boise Cascade/South Landfill was reportedly never used by Boise Cascade Corporation for landfilling activity [32]. The landfill property was obtained by Boise Cascade Corporation as part of the transfer of ownership of the paper mill in 1982 [32,42].

. . . The previous owner and operator of the landfill and the . . . paper mill was Saxon Industries. Saxon Industries began landfill operations at this location in 1974 as a result of the construction of a wastewater treatment lagoon at the location of their former landfill in Sheldon. The [Boise Cascade/South Landfill] was used for the disposal of tree bark and paper sludge produced by Saxon Industry's paper mill in Sheldon Spring until 1982 [33]. [Reportedly, empty



Base map is a portion of the following 7.5' series USGS Quadrangle: Sheldon Springs, VT, 1986.

SCALE 1:24 000



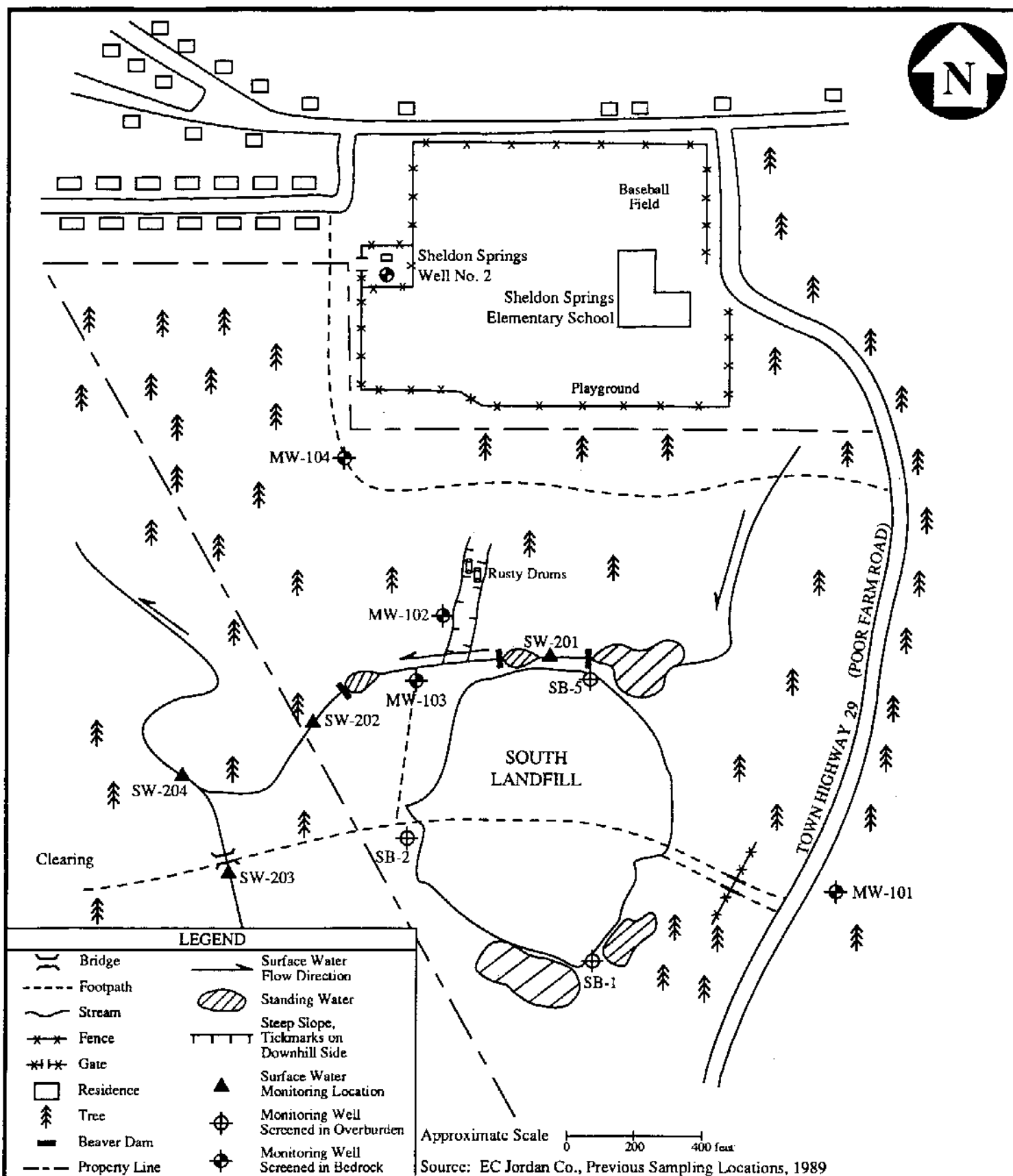
CONTOUR INTERVAL 6 METERS

### LOCATION MAP BOISE CASCADE/SOUTH LANDFILL SHELDON SPRINGS, VERMONT



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Figure 1



**SITE SKETCH WITH PREVIOUS SAMPLING LOCATIONS**  
**BOISE CASCADE/SOUTH LANDFILL**  
**SHELDON SPRINGS, VERMONT**

drums of various product[s] were also disposed of in the landfill [51]]. The total amount of waste disposed of is estimated to have been in the range of 21,000 to 50,000 tons. There is no evidence available to indicate the existence of a liner under the landfill. The landfill site was identified as an acceptable bark, sawdust and paper sludge disposal site by the Vermont Department of Water Resources and Environmental Engineering (DWREE) under the National Pollutant Discharge Elimination System (NPDES) (No. 41001) program in 1974. It was not certified under state solid waste regulations as a landfill by DWREE [42]. [Prior to 1974, another landfill was used by Saxon Industries for sludge and bark disposal; its location is part of the CERCLIS site, Boise Cascade/North Landfill/Lagoon (VTD981885270)] [14,42,54].

Boise Cascade Corporation closed the [Boise Cascade/South Landfill] after purchasing the paper mill from Saxon Industries in 1982. The Closure Plan was reviewed and approved by VTAEC. The plan consisted of regrading the landfill, applying a soil/sludge final cover [cap], installing a diversion ditch along the east side of the landfill, and initiating groundwater monitoring at Sheldon Springs Well No. 2 and at piezometers installed at the landfill [42].

Limited information was available describing the processes used in the past at the Sheldon location. At the ...[time of the SI]..., the Boise Cascade Corporation paper mill produce[d] 150 tons per day of paper board products. Four major types of paper [were] produced at the mill: capseal liners, paper plate stock grades, office products grades, and colored and uncolored poster boards. The mill use[d] waterdriven grinders to produce approximately 50 tons per day of groundwood pulp. Chemicals or bleaches [were] not used in this process; however, Nalcon 85PCO14 (a carbamate), [was] used to control bacterial growths on the system [42].

In addition to the pulp, the mill use[d] about 100 tons daily of purchased fibers (virgin chemical pulps, and recycled waste papers) [42]. [The paper mill blended the above fibers in proportions required to meet the requirements for the grade of end product [11].] Sizing (stiffening) of the paper [was] produced by the addition of rosin size and alum. Starches and some mineral fillers (talc and calcium carbonate) may also be added to the paper. Mold or fungal deposits on the ... papermaking machines [were] controlled by the addition of ... [Nalco 7620WB, a water based emulsion of 10% active] ... methylene bis-thiocyanate (MBT) [42,71]. Some grades of paper produced at the mill required the addition of a fungicide, pentachlorophenol (PCP), in order to provide long term mold protection [42].

Wastewater from the mill [was] clarified in a 120-foot primary clarifier from which sludge is removed and thickened before disposal. Until 1983, sludge was disposed of at the ... [facility's landfills]. After April 1983, the paper mill sludge was trucked to Youngs Landfill in Highgate, Vermont [42].

Pentachlorophenol (PCP) in the form of Nalcon 7633-M was used in the production of 15 to 20 percent of the grades of paper produced by the mill prior to the spring of 1985 [11]. For these grades of paper, 1 to 5 pounds of PCP were added per ton of paper produced [11,49]. In 1986, the mill produced 150 tons of paper per day [71]. At these rates, as much as 150 pounds of PCP could have been used each day at the mill. This estimated rate may or may not be applicable to PCP use before 1982, when the sludge potentially containing PCP was being deposited at the Boise Cascade/South Landfill.

[In 1982] . . . a hydrogeologic study was conducted by Wagner, Heindel, and Noyes (WH&N) of Burlington, Vermont prior to Boise Cascade's purchase of the paper mill and landfill[s]. The investigation included the installation of [nineteen piezometers in five borings, sampling and analysis of groundwater from the piezometers, and sampling of] surface water for temperature, pH, [specific] conductance, color, total organic carbon (TOC), total organic halogens (TOX), phenol, aluminum, iron, chloride and sulfate. Sampling and analyses were conducted by Dubois and King of Randolph, Vermont [1,42,68].

Sludge samples from the Boise Cascade Corporation wastewater treatment system were collected and analyzed in 1984 and 1985. All samples were collected by, and analyzed for, Boise Cascade Corporation. The dates of collection and the associated analytical laboratory are as follows: December 1984, NUS Corporation; April 10, 1985, Aquatec Environmental Services; July 18, 1985, Aquatec Environmental Services. The samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and cyanide. The following substances were detected (highest concentration given in parentheses based on dry weight): acetone (1,600C micrograms per kilogram [ $\mu\text{g/kg}$ ]), 2-butanone (310C  $\mu\text{g/kg}$ ), chloroform (20K  $\mu\text{g/kg}$ ), methylene chloride (40KC  $\mu\text{g/kg}$ ), PCP (155,000  $\mu\text{g/kg}$ ), phenol (3,000  $\mu\text{g/kg}$ ), toluene (170  $\mu\text{g/kg}$ ), arsenic (90.9 milligrams per kilogram [ $\text{mg/kg}$ ]), cadmium (7.7  $\text{mg/kg}$ ), copper (604  $\text{mg/kg}$ ), lead (100  $\text{mg/kg}$ ), mercury (0.039  $\text{mg/kg}$ ), nickel (130  $\text{mg/kg}$ ), and zinc (260  $\text{mg/kg}$ ) [3,4,45,70]. The qualifier C indicates that the result has been corrected for the presence of the compound in the blank. The qualifier K indicates that the compound was analyzed for and detected, but at a concentration not reliably quantifiable. The value is the detection limit for the compound [3,4]. The contaminants present in these 1984 and 1985 sludge samples may or may not be similar to those present in the sludge that was disposed of to the landfill prior to its closure in 1982 and used as cap material.

Boise Cascade/South Landfill was listed in the CERCLA Information System (CERCLIS) on March 14, 1986 [54]. The site was originally identified as Boise Cascade South; the site name was changed in 1994 to Boise Cascade/South Landfill in order to further differentiate it from another CERCLIS site, Boise Cascade/North Landfill/Lagoon (VTD981885270) [30]. The PA for Boise Cascade/South Landfill was completed by the VTAEC in March 1987. NUS Corporation completed the SI in 1988. No sampling was performed in conjunction with the SI [42]. In 1989, Boise Cascade Corporation sold the mill complex, including the mill and the wastewater treatment facilities, to Specialty Paperboard, Inc. [32]. In 1993, Rock-Tenn Company purchased the mill complex [14].

In March 1988, a Site Investigation Report (non-Superfund) was completed by E.C. Jordan Company for Boise Cascade Corporation that included a review of existing data, a geophysical survey, completion of soil borings, installation of four new bedrock monitoring wells (MW-101 through 104), and sampling and analysis of groundwater, surface water, and soil. Analyses from the groundwater, surface water, and soil samples did not detect the presence of any VOCs, including PCP or other phenols [32]. Four soil samples were collected from a depth of 3 to 4.5 feet and composited for the purpose of metals analysis. Inorganics detected above the Practical Quantitation Level (PQL) include chromium, copper, nickel, zinc and arsenic [33]. A sludge sample collected from the landfill cap was analyzed for metals and detected the following metals above the PQLs: magnesium, sodium, barium, chromium, cobalt, copper, iron, lead,

manganese, nickel, vanadium, zinc, aluminum, arsenic, and potassium. No reference sample is available for comparison [33].

In November 1988, E.C. Jordan performed a water level drawdown test that indicated that the water level in MW-104 was affected by pumping at Sheldon Springs Well No. 2. Test pits were also dug to determine the extent of a natural clay layer underlying the landfill. Results indicated that the clay layer underlies the majority of the landfill but thins out to the east [32].

Additional monitoring was completed in February 1989 by E.C. Jordan for the purpose of completing a database for a risk assessment. Based on results of the 1987 Site Investigation and the 1989 water quality monitoring results, E.C. Jordan concluded that Sheldon Springs Well No. 2 was not affected by the landfill. PCP and methylene bithiocyanate (MBT) were not detected in the groundwater or surface water at the Boise Cascade/South Landfill. Groundwater contaminants detected included bis(2-ethylhexyl)phthalate in the bedrock monitoring wells, 2-butanone and toluene in the overburden monitoring wells, and inorganics detected in many well samples [32,34].

A post-closure care plan for the South Landfill was submitted by Boise Cascade Corporation to the VTDEC in May 1990. The plan stated that because a risk assessment had identified no significant public health risks, a post closure plan was prepared in lieu of a remedial action plan. The plan recommended the continuing monitoring of Sheldon Springs Well No. 2, four bedrock monitoring wells, and two surface water locations, and an annual inspection of the landfill. Groundwater monitoring analyses included SVOCs, metals, and other landfill indicator parameters. The monitoring was proposed for a 5-year period, ending in June 1996, if results continue to indicate a lack of significant public health risk [32]. VTDEC approved the plan with some modifications to the surface water sampling locations and additional sampling and analysis of the landfill cap for polychlorinated dibenzo-p-dioxins (PCDDs). The PCDD sampling was requested based on the concern that a constituent of PCP, octa-chloro-dibenzo-p-dioxin (OCDD) may transform through a photolytic conversion to lower chlorinated PCDDs [69]. The monitoring program remains active in 1995.

In the fall of 1993, Boise Cascade Corporation performed sampling and analyses for PCDDs and polychlorinated dibenzo-p-furans (PCDFs). The analytical results did not meet quality assurance/quality control (QA/QC) criteria. Upon agreement with the VTDEC, Boise Cascade Corporation collected a second set of samples for analyses of PCDDs and PCDFs in the fall of 1994. Three samples were collected from 2 to 8 feet below ground surface at the landfill. OCDD was detected in the samples at concentrations ranging from 160 to 790 ppb. The isomers 2,3,7,8-tetra-chloro-dibenzo-p-dioxin (TCDD) and 1,2,3,7,8-pentachloro-dibenzo-p-dioxin (PeCDD) were not detected above detection limits in the samples. Additional isomers of hexa-chloro-dibenzo-p-dioxin (HxCDD), hepta-chloro-dibenzo-p-dioxin (HpCDD), tetra-chloro-dibenzo-p-furan (TCDF), pentachloro-dibenzo-p-furan (PeCDF), hexa-chloro-dibenzo-p-furan (HxCDF), hepta-chloro-dibenzo-p-furan (HpCDF), and octa-chloro-dibenzo-p-furan (OCDF) were detected in the samples [38].

On October 4, 1994, CDM Federal performed onsite reconnaissance activities at Boise Cascade/South Landfill. The field team observed areas of standing water to the south and north of the landfill. To the north, the stream has been partially dammed by beavers. On both sides,

there was orange discoloration of the water and/or sediments. The landfill was covered with tall, thick vegetation. A hole in the landfill cap (approximately 1 foot diameter), presumably dug by an animal, was observed by the field team. Chunks of greenish paper sludge were evident surrounding the hole. Other spots exposed what appeared to be dried paper sludge, tree bark, and miscellaneous trash. A few unlabelled, rusty drums were observed in a ditch approximately 100 feet north of the landfill [13].

Table 1 presents identified structures or areas on the Boise Cascade/South Landfill property that are potential sources of contamination, the containment factors associated with each source, and the relative location of each source.

**TABLE 1**  
**Source Evaluation for**  
**Boise Cascade/South Landfill**

Potential Source Area	Containment Factors	Spatial Location
Landfill	Natural clay layer beneath the landfill; landfill is capped with a soil/sludge cover	Central portion of property

[32,42]

Table 2 summarizes the types of potentially hazardous substances that have been disposed of, used, or stored on the property.

**TABLE 2**  
**Hazardous Waste Quantity for**  
**Boise Cascade/South Landfill**

Substance	Quantity or Volume/Area	Years of Use/Storage	Years of Disposal	Source Area
Wastewater treatment sludge	21,000 to 50,000 tons (estimate)	Not applicable	1974-1982	Landfill

[42]

On May 17, 1995, CDM Federal collected environmental samples from Boise Cascade/South Landfill. Figure 3: Site Sketch with CDM Federal Sampling Locations. Samples were collected in accordance with the Task Work Plan for Onsite Reconnaissance and Sampling at Boise Cascade/South Landfill, dated April 21, 1995, and approved by EPA [15]. Analytical results were evaluated according to EPA Contract Laboratory Program (CLP) Tier II data validation

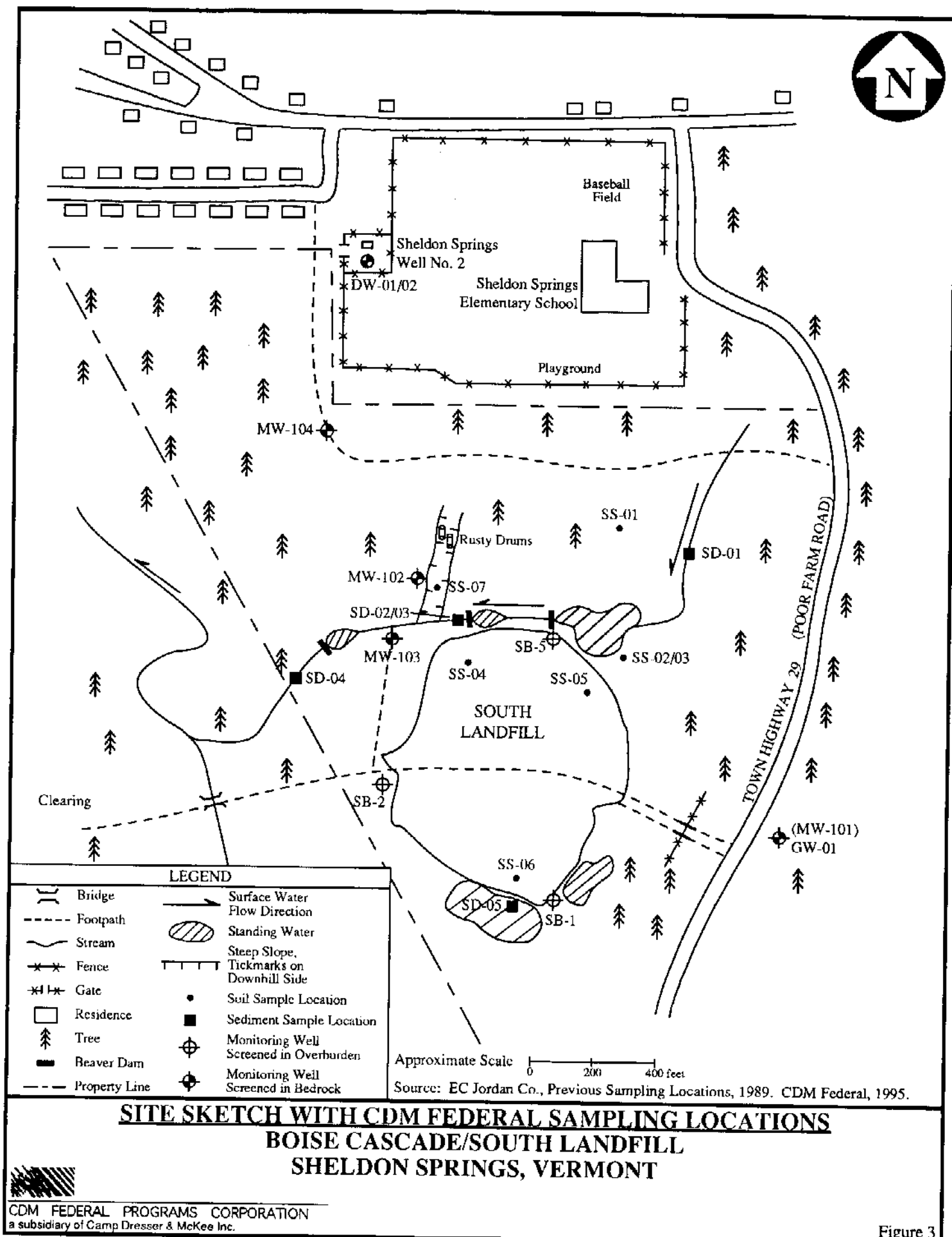


Figure 3

protocols. Data quality objectives established for the sampling event were met. See the Waste/Source Sampling, Groundwater Pathway, and Surface Water Pathway sections of this report for more detail. The only other property listed in CERCLIS within 1 mile of the Boise Cascade/South Landfill is Boise Cascade/North Landfill/Lagoon [VTD981885270] [54]. The only property listed in the RCRA Information System (RCRIS) in the town of Sheldon is the paper mill, currently owned by Rock-Tenn Company. The RCRA identification number for Rock-Tenn Company is VTD095247185, which is the same as the CERCLIS identification number for the Boise Cascade/South Landfill [53,54]. When the ownership of the paper mill facility changed from Boise Cascade Corporation to Specialty Paperboard, Inc. and then to Rock-Tenn Company, the RCRA identification number was transferred as well. However, while the RCRIS/CERCLIS identification numbers are the same, ownership of the Rock-Tenn Company and the Boise Cascade/South Landfill are separate [14,42].

### WASTE/SOURCE SAMPLING

On May 17, 1995, CDM Federal collected seven surficial soil samples at Boise Cascade/South Landfill. Waste/source sample locations are shown in Figure 3 and reported in Table 3. A reference sample (SS-01) was collected from a wooded area north of the landfill at a location presumed to be unaffected by onsite contaminants. All waste/source samples were submitted for analyses for full Target Compound List (TCL) organic compounds and Target Analyte List (TAL) inorganic analytes through EPA CLP Routine Analytical Services (RAS) [15].

**TABLE 3**

**Waste/Source Sample Summary: Boise Cascade/South Landfill  
Samples Collected by CDM Federal on May 17, 1995**

Sample Location No.	Traffic Report No.	Time	Remarks	Sample Source
SS-01	AKG04 (O) MAHF04 (I)	1500	Grab	Soil sample collected north of the landfill, on the opposite side of the unnamed stream from the landfill; reference sample
SS-02	AKG05 (O) MAHF05 (I)	1330	Grab	Soil sample collected from the north face of the landfill; in an area of groundwater/ leachate seep; approximately 20 feet from the unnamed stream
SS-03	AKG06 (O) MAHF06 (I)	1330	Grab	Duplicate of SS-02 for QC

**TABLE 3**  
**(continued)**

Sample Location No.	Traffic Report No.	Time	Remarks	Sample Source
SS-04	AKG07 (O) MAHF07 (I)	1630	Grab	Soil sample collected from the north face of landfill; landfill cap material; approximately 50 feet from the unnamed stream
SS-05	AKG08 (O) MAHF08 (I)	1245	Grab	Soil sample collected from the north face of landfill; landfill cap material; approximately 100 feet from unnamed stream
SS-06	AKG09 (O) MAHF09 (I)	1600	Grab	Soil sample collected at the base of the south face of landfill; approximately 20 feet from the ponded area
SS-07	AKG10 (O) MAHF10 (I)	1545	Grab	Soil sample collected in the drainage ditch on the north side of the unnamed stream
EB-SS	AKG19 (O) MAHF19 (I)	0900	Grab	Surface soil sampling equipment rinsate; for QC of decontamination procedures

O = Organic Analysis  
I = Inorganic Analysis

[13,15]

Table 4 presents a summary of compounds and analytes detected through CLP analysis of surface soil samples. For each sample location, a compound or analyte is listed if it has been detected at three or more times the reference sample concentration. Compounds or analytes that occur at a concentration equal to or greater than three times the reference concentration (sample location SS-01) are designated by their approximate relative multiple above the reference concentration. If the compound or analyte is not detected in the reference sample, the sample quantitation limit (SQL) (for organic analysis) or sample detection limit (SDL) (for inorganic analysis) is used as the reference value. Accordingly, a compound or analyte is listed by the multiple above its SQL or SDL only if it occurs at a value equal to or greater than the corresponding SQL or SDL in the reference sample.

Sample results qualified with a "J" in the analytical results tables are considered approximate because of limitations identified during CLP data validation. Organic sample results reported at concentrations below quantitation limits and confirmed by mass spectroscopy are also considered approximate and are qualified by a "J". The complete analytical results of CDM

Federal sampling activities, including sample quantitation and sample detection limits, are presented in Attachment A (organic results) and Attachment B (inorganic results).

**TABLE 4**

**Summary of Analytical Results  
Source Sample Analysis for  
Boise Cascade/South Landfill**

Sample Location No.	Compound/Analyte	Concentration (mg/kg)	Reference Concentration (mg/kg)	Comments
SS-02	Calcium	3,690	753	4.90 x REF
	Cobalt	10.4 J	3.1	3.4 x REF
	Copper	47.6	9.3 J	5.1 x REF
	Iron	38,600	12,500	3.09 x REF
	Magnesium	3,070	812	3.78 x REF
	Manganese	580	72.7	7.98 x REF
	Nickel	22.5 J	6.1 J	3.7 x REF
	Potassium	675 J	149 J	4.53 x REF
	Cyanide	4.8 J	1.4 U	3.4 x SDL
SS-03	Calcium	3,400	753	4.52 x REF
	Cobalt	10.0 J	3.1	3.2 x REF
	Copper	47.2	9.3 J	5.1 x REF
	Magnesium	2,840	812	3.50 x REF
	Manganese	534	72.7	7.34 x REF
	Nickel	18.5 J	6.1 J	3.0 x REF
	Potassium	578 J	149 J	3.88 x REF
	Cyanide	7.0 J	1.4 U	5.0 x SDL

**TABLE 4**  
**(continued)**

Sample Location No.	Compound/Analyte	Concentration (mg/kg)	Reference Concentration (mg/kg)	Comments
SS-04	bis(2-Ethylhexyl)phthalate	880 µg/kg	500 U µg/kg	1.8 x SQL
SS-05	Cobalt	9.7	3.1	3.1 x REF
	Magnesium	2,950	812	3.63 x REF
	Manganese	437	72.7	6.01 x REF
	Potassium	685 J	149 J	4.60 x REF
SS-06	Calcium	3,850	753	5.11 x REF
	Cobalt	11.0	3.1	3.5 x REF
	Magnesium	4,720	812	5.81 x REF
	Manganese	627	72.7	8.62 x REF
	Nickel	27.8	6.1 J	4.6 x REF
	Potassium	1,210 J	149 J	8.12 x REF

J = Quantitation approximate due to limitations identified in quality control review.

mg/kg = Milligrams per kilogram (equivalent to parts per million or ppm).

REF = Reference concentration.

SDL = Sample detection limit.

SQL = Sample quantitation limit.

U = Indicates the sample was analyzed but not detected and reports the detection value.

µg/kg = Micrograms per kilogram (equivalent to parts per billion or ppb).

Note: The precision of the entries in the "Comments" column is governed by the rules of significant digits.

[46,47]

Substances detected at concentrations significantly above reference sample concentrations in waste/source samples collected from the landfill cap include bis(2-ethylhexyl)phthalate, calcium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, and cyanide [46,47]. These contaminants may be constituents of the sludge used to form the soil/sludge landfill cap material. Copper and nickel were previously detected in a sludge sample analyzed in 1985 [3,4,45,70]. The 1988 landfill cap sample detected the following metals above the PQL that were also detected by CDM Federal sampling and analysis: magnesium, cobalt, copper, iron, manganese, nickel, and potassium [33].

## GROUNDWATER PATHWAY

Bedrock beneath the facility is the Cheshire Quartzite, a fractured quartzite. Fractures and faults are oriented toward the northeast in this area. Well logs of the area indicate that the bedrock is overlain by 5 to 140 feet of surficial material and that the depth [to] the water table ranges from 19 to 75 feet. The well logs of the onsite piezometers indicate the depth [to] bedrock is approximately 40 feet [below ground surface]. The [surficial] deposits are stratified, containing a shallow silty layer which perches infiltrating water, fine sand to silts at depth with some localized clay layers and till deposits overlying bedrock. The transition from sand to clay is gradual [42].

A Hydrogeologic Landfill Study completed in 1982 by WH&N indicated that the landfill was producing leachate that was flowing downward into the overburden and bedrock groundwater. WH&N identified a clay layer that was present underneath the landfill although it could not be concluded whether or not the clay layer was continuous. It was also concluded, based on well information and the observation of groundwater seeps, that groundwater flows toward the stream bordering the landfill to the north. Depth to groundwater in overburden piezometers was 3 to 18 feet below ground surface (bgs) [68].

The 1987 Site Investigation by E.C. Jordan revealed that the landfill is underlain by sand, silt, silty clay, and glacial till. It also indicated that bedrock under the landfill is fractured and slopes generally northwest. There are two aquifers underlying the landfill, one in bedrock and one in the shallow overburden. The silty clay between the two aquifers is expected to be a confining layer. Bedrock groundwater flow direction is to the northwest. Depth to groundwater as measured in the bedrock monitoring wells was 5 feet bgs to the east of the landfill and 7 to 52 feet bgs to the northwest of the landfill [32].

Groundwater quality throughout Vermont, including the vicinity of Boise Cascade/South Landfill, is class III [9]. Class III is defined as suitable for use as individual domestic water supplies [17].

The village of Sheldon Springs is supplied drinking water by a bedrock groundwater well (Sheldon Springs Well No. 2) located 0.2 mile, or approximately 1,000 feet, north of the landfill. The depth of this well is 203 feet, extending through 30 feet of sand, 110 feet of clay, 6 feet of gravel, and 57 feet of limestone bedrock [63]. Sheldon Springs Well No. 2 currently supplies drinking water to approximately 80 connections [22,65]. The 80 service connections are estimated to include the Sheldon Springs Elementary School (population of 390), the Rock-Tenn Company facility (population of 142), in addition to 78 residences with an estimated 2.8 people per household, for a total service population of 750 [14,29,36].

The village of Sheldon is supplied drinking water by an overburden groundwater well. This well is located 1.35 miles east southeast of the landfill, and serves approximately 300 people. The village of East Highgate (approximately 50 people) is served drinking water by a groundwater spring located 1.8 mile northwest of the landfill [65]. A groundwater supply is proposed at Green Mountain Estates in Highgate, approximately 3.05 miles west of the landfill, which would serve approximately 68 people [65]. Wellhead protection areas are associated with all of these

wells [66]. Table 5 summarizes information on the public groundwater supply sources within 4 miles of the landfill.

**TABLE 5**  
**Public Groundwater Supply Sources within 4 Miles of**  
**Boise Cascade/South Landfill**

Distance/ Direction from Property	Source Name	Location of Source (Town)	Estimated Population Served	Source Type
0.2 mile N	Sheldon Springs Well No. 2	Sheldon Springs	750	Bedrock
1.35 mile ESE	Sheldon Village Well	Sheldon	300	Overburden
1.8 mile NW	E. Highgate Spring	E. Highgate	50	Spring
3.05 mile W	Green Mountain Estates*	Highgate	68*	Overburden

\* Proposed  
[65]

Private drinking water supply wells are in use within 4 miles of the landfill [25,26,27,36]. The nearest private well identified by CDM Federal is located approximately 0.5 mile south of the landfill [26]. There are private bedrock drinking water wells located northwest and west of the landfill, within 0.5 to 0.75 mile [25,27,67]. An estimate 2,699 people are served drinking water by groundwater sources within 4 miles of Boise Cascade/South Landfill [36].

Table 6 lists the populations that receive drinking water from public and private sources located within each of the target distance rings. Frost Associates estimated the population served by private wells by summing the total number of drilled and dug wells within each CENTRACTS block (a Cartesian data management system used by the Census Bureau) and multiplying this total by the average number of people in each household [8]. There are approximately 2.8 people per household in Sheldon [36].

Private drinking water populations within distance rings from Boise Cascade/South Landfill were estimated from the Frost Associates report generated for the Boise Cascade/North Landfill/Lagoon SIP, which is located 3,500 feet, or 0.65 mile north of Boise Cascade/South Landfill [36,58]. Because of the rural surroundings of these two locations, it is expected that the actual populations for the distance rings surrounding the two locations are similar. However, the 0.00 to 0.25-mile and 0.25 to 0.50-mile distance rings show the differences between the two site locations. There are no residences, and therefore no private wells within 0.25 mile of the Boise

Cascade/South Landfill [58]. All residences within 0.25 to 0.50 mile, plus the Sheldon Springs Elementary School, are known to be supplied drinking water by the Sheldon Springs Water Supply System [25,58]. Frost Associates reports that approximately 4 people are served by private wells within 0.25 mile and 17 people served within 0.25 to 0.5 mile [36]. Therefore, there is a discrepancy between the Frost Associates report and the information known about nearby residences. This discrepancy is further complicated by a difference between the CENTRACTS data and the Cartesian system used by Frost Associates, and the radial system used to calculate the number of people within each ring. The private drinking water populations within the 0 to 0.25-mile, and 0.25 to 0.50-mile distance rings, as documented by Frost Associates, have therefore been moved to the 0.50 to 0.75-mile distance ring. The use of private wells located 0.50 to 1.00 mile southwest of the property has been documented [25,26,27,67].

**TABLE 6**

**Estimated Drinking Water Populations Served by Groundwater Sources  
within 4 Miles of Boise Cascade/South Landfill**

Radial Distance from Boise Cascade/South Landfill (miles)	Estimated Population Served by Private Wells	Estimated Population Served by Public Wells	Total Estimated Population Served by Groundwater Sources within the Ring
0.00 - 0.25	0	750	750
> 0.25 - 0.50	0	0	0
> 0.50 - 1.00	69	0	69
> 1.00 - 2.00	290	350	640
> 2.00 - 3.00	525	0	525
> 3.00 - 4.00	685	0*	685
<b>TOTAL</b>	<b>1,569</b>	<b>1,100</b>	<b>2,669</b>

\* Proposed well population not included in totals

[36,65]

The onsite monitoring wells and Sheldon Springs Well No. 2 have been monitored by Boise Cascade Corporation since 1982. MBT was detected at 7.4 parts per billion (ppb) in a sample collected from a tap inside the paper mill in April 1982. PCP was detected at trace levels (less than 1 ppb) in a sample from monitoring well SB-2 in August 1983. Total Recoverable Phenolics (TRP) was detected in groundwater samples from 1982 to 1987 at concentrations ranging from 3 to 450 ppb in the overburden monitoring wells [69]. At the time, it was thought

that TRP concentrations included concentrations of PCP and MBT. Later it was determined that TRPs do not include either PCP or MBT, the major contaminants of concern at the landfill [11,32]. From 1982 to 1986, Sheldon Springs Well No. 2 showed concentrations of phenol ranging from 0.02 to 0.08 ppm. PCP was detected in a sample from Sheldon Springs Well No. 1 in February 1986 at less than 1 ppb [5,69]. Sheldon Springs Well No. 1 was no longer used after 1986 (see Figure 4: Area Map) [69].

Water quality analyses prior to 1986 lacked QA/QC measures and information. Generally, the data produced before 1987 did not include blanks, spikes, or other checks. EPA had no approved analytical method for the detection of PCP and therefore no standard method was used or quoted. Raw data are generally not available [11,32].

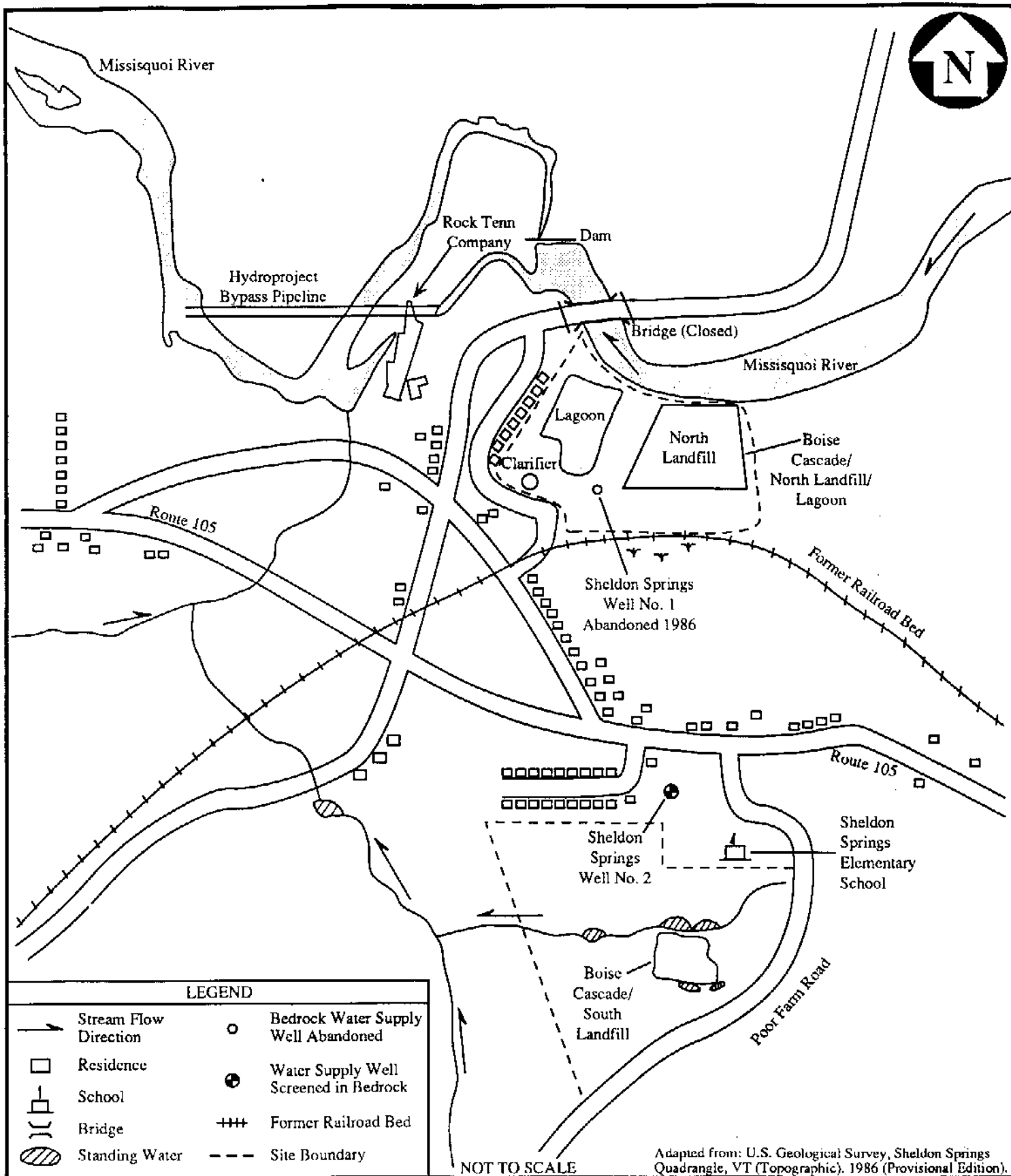
Groundwater monitoring in overburden at Boise Cascade/South Landfill has been conducted since 1982 [42,68]. Substances detected at concentrations significantly above reference concentrations in overburden at the landfill include toluene, phenol, 2-butanone, aluminum, arsenic, barium, calcium, iron, magnesium, manganese, potassium, sodium, and zinc [1,10,16,28].

Bedrock monitoring wells have been sampled regularly since 1989. Annual sampling by ABB Environmental Services for Boise Cascade Corporation of MW-101, 102, 103, and 104 is expected to continue through 1996. Samples are analyzed for SVOCs and metals [6,7,8]. Substances detected at significant concentrations in MW-102, 103, or 104, above the reference concentrations in MW-101 include (with highest concentrations in parentheses): benzoic acid (3 µg/l); bis(2-ethylhexyl)phthalate (490 µg/l); aluminum (4 mg/l); arsenic (0.016 mg/l); barium (0.082 mg/l); iron (3.2 mg/l); lead (3.9 mg/l); magnesium (16 mg/l); manganese (14 mg/l); potassium (1.2 mg/l); and sodium (33 mg/l). VOCs were analyzed for in September 1989; no VOCs were detected in MW-102, 103, and 104 [34].

Annual monitoring of the Sheldon Springs Well No. 2 by Boise Cascade Corporation since 1989 has included annual sampling and analysis for TCL SVOCs and selected metals [6,7,8]. In 1989, analyses conducted for the Site Investigation (non-Superfund) included TCL VOCs and SVOCs, as well as the full TAL of metals. The only compound/analytes detected in Sheldon Springs Well No. 2 above background concentrations in 1989 were barium and sodium [33]. In 1993 and 1994 monitoring by Boise Cascade Corporation, no SVOCs have been detected in the well; iron, sodium, and barium have been detected above background concentrations [6,7,8].

In 1993, a leaking underground gasoline storage tank contaminated the Sheldon Springs water supply distribution system during water main repairs. Analyses of tap water samples from at least one home in the Sweet Hollow Road area, less than 1 mile northwest of the landfill, indicated the presence of benzene above the EPA established Maximum Contaminant Level (MCL) for drinking water [48]. A water line relocation has been completed to avoid the transport of water through the contaminated portion of the distribution system [37,44].

Monitoring of Sheldon Springs Well No. 2 as required by VTDEC, Water Supply Division, has indicated that bacteriological, inorganic, and VOC results, for samples collected after treatment, have met state standards [43]. In October 1993, VOC analysis by EPA Method 524.2 of a



# **AREA MAP** **BOISE CASCADE/SOUTH LANDFILL** **SHELDON SPRINGS, VERMONT**

CDM FEDERAL PROGRAMS CORPORATION  
a subsidiary of Camp Dresser & McKee Inc.

Figure 4

sample collected from the pumphouse did not detect the presence of any VOCs [31,39]. Currently, monitoring required by the state includes VOCs and SVOCs on a quarterly basis and inorganics every 3 years [31].

On May 17, 1995, CDM Federal collected one groundwater sample and two drinking water samples at Boise Cascade/South Landfill. Sample locations are shown in Figure 3 and summarized in Table 7. A reference sample (GW-01) was collected from bedrock monitoring well MW-101, a location presumed to be unaffected by onsite contaminants. One drinking water sample and a duplicate (DW-01 and DW-02) were collected from the Sheldon Springs Well No. 2 pumphouse. All groundwater samples were submitted for analyses for TCL pesticides, TCL PCBs, and full TAL inorganic analytes through EPA CLP RAS. No VOC or SVOC analyses were performed on groundwater samples collected by CDM Federal [15].

**TABLE 7**

**Groundwater Sample Summary: Boise Cascade/South Landfill  
Samples Collected by CDM Federal on May 17, 1995**

Sample Location No.	Traffic Report No.	Time	Remarks	Sample Source
GW-01	AKG16 (O') MAHF16 (I)	1130	Grab	Groundwater sample collected from monitoring well MW101; reference sample
DW-01	AKG17 (O') MAHF17 (I)	0845	Grab	Drinking water sample collected from outlet for Sheldon Springs Well No. 2, a public water supply well, prior to chlorination
DW-02	AKG18 (O') MAHF18 (I)	0845	Grab	Duplicate of DW-01 for QC
EB-GW	AKG21 (O') MAHF21 (I)	0900	Grab	Groundwater sampling equipment (bailer) rinsate; for QC of decontamination procedures

O' = Organic Analysis (pesticides and PCBs only)  
I = Inorganic Analysis

[15,46,47]

Table 8 presents a summary of compounds and analytes detected through CLP analysis of groundwater samples. For each sample location, a compound or analyte is listed if it has been detected at three or more times the reference sample concentration. Compounds or analytes that occur at a concentration equal to or greater than three times the reference concentration (sample location GW-01) are designated by their approximate relative multiple above the reference concentration. If the compound or analyte is not detected in the reference sample, the SQL (for organic analysis) or SDL (for inorganic analysis) is used as the reference value. Accordingly, a compound or analyte is listed by the multiple above its SQL or SDL only if it occurs at a value equal to or greater than the corresponding SQL or SDL in the reference sample.

Sample results qualified with a "J" in the analytical results tables are considered approximate because of limitations identified during CLP data validation. Organic sample results reported at concentrations below quantitation limits and confirmed by mass spectroscopy are also considered approximate and are qualified by a "J". The complete analytical results of CDM Federal sampling activities, including sample quantitation and sample detection limits, are presented in Attachment A (organic results) and Attachment B (inorganic results).

**TABLE 8**  
**Summary of Analytical Results**  
**Groundwater Sample Analysis for**  
**Boise Cascade/South Landfill**

Sample Location No.	Compound/Analyte	Concentration ( $\mu\text{g/l}$ )	Reference Concentration ( $\mu\text{g/l}$ )	Comments	MCL
DW-01	Sodium	37,800	9,130	4.14 x REF	NE
DW-02	Sodium	38,400	9,130	4.21 x REF	NE

MCL = Maximum Contaminant Level from EPA Drinking Water Regulations and Health Advisories (May 1995)

NE = An MCL has not been established for this substance.

REF = Reference concentration.

$\mu\text{g/l}$  = Micrograms per liter (equivalent to parts per billion or ppb).

Note: The precision of the entries in the "Comments" column is governed by the rules of significant digits.

[46,47]

Sodium was detected significantly above the reference concentration in the drinking water samples DW-01 and DW-02. Sodium was not detected at significant concentrations in source samples collected at the landfill [46,47]. The origin of sodium is not known at this time. The Vermont Department of Health has suggested that sodium concentrations in the groundwater in Sheldon Springs may be naturally releasing from the Pleistocene marine deposits making up the overburden [40]. While there is no MCL established for sodium, the concentration of sodium

detected in the drinking water samples is above the Drinking Water Equivalent Level (DWEL) of 20,000  $\mu\text{g/l}$ . The DWEL is a federal health based guidance standard [55].

Sodium concentrations ranged from 5 to 76 ppm during 1974 to 1985 in Sheldon Springs Well No. 1. In Sheldon Springs Well No. 2, the concentrations of sodium ranged from 28 to 71 ppm during 1978 to 1985. These sodium concentrations are above the Vermont Department of Health (VT DOH) maximum contaminant level (MCL) for persons on salt restricted diets [42].

The reference concentrations were obtained through sampling the background monitoring well, MW101. Based on water table elevations obtained by E.C. Jordan and ABB Environmental Services over the period from 1989 to 1994, MW101 is believed to be upgradient of groundwater flow across the landfill [6,32,33,34]. However, if the drinking water sample concentrations were used as the reference sample concentrations, numerous substances attributable to the landfill would be reported as significantly above reference concentrations in MW101. One substance is present at a concentration above the MCL (cadmium at 19.3  $\mu\text{g/l}$ ) and one substance concentration is above the federal action level (lead at 31.1  $\mu\text{g/l}$ ) [55].

## **SURFACE WATER PATHWAY**

As runoff is expected to drain radially off the landfill, the most upstream probable point of entry (PPE) of contaminants migrating from the landfill to the surface water pathway is in the northeast corner of the landfill, on the unnamed stream bordering the landfill to the north [42,58]. The surface water pathway flows from the PPE, westward along the unnamed stream approximately 0.25 mile, where it joins a north flowing unnamed stream. It continues along this stream approximately 0.5 mile where it joins another north flowing unnamed stream. This stream flows approximately another 0.5 mile where it joins the Missisquoi River (see Figure 4) [58]. The surface water pathway continues for approximately 13.75 miles in a generally westward direction. The end of the 15-mile downstream pathway is in the Swanton area, before the Missisquoi National Wildlife Refuge. The wildlife refuge is located approximately 18 miles downstream of the landfill [57].

Soil types at the landfill are Windsor series and Au Gres series (loamy fine sands). The area south of the landfill is classified as Carlisle Muck (poorly drained woody organic deposits) [52]. Boise Cascade/South Landfill is outside of the 500-year floodplain [12,35].

The flow rates of all of the unnamed waterbodies on the surface water pathway upstream of the Missisquoi River are not documented. Based on observations by CDM Federal, the flow rates are assumed to be less than 10 cubic feet per second (cfs). The flow rate of the Missisquoi River is gauged by the U.S. Geological Survey (USGS) at a gauging station located approximately 15 miles downstream of Sheldon Springs. At this location, the mean annual flow rate as gauged between 1990 and 1993 is 1,577 cubic feet per second (cfs) [60]. Based on the drainage basin area for the Missisquoi River, calculated at the Sheldon Springs dam, the flow rate is estimated to be 1,657 cfs [18].

The Sheldon Springs hydroproject, operated by Missisquoi Associates, diverts water from the dam and discharges the water approximately 1 mile downstream of the dam [2,14,23,24]. A minimal flow is maintained between these two points for the maintenance of walleyed pike

populations in the rapids section of Missisquoi River below the Sheldon Springs dam [21]. Table 9 summarizes information on the 15-mile downstream pathway.

**TABLE 9**  
**Water Bodies within the Surface Water Segment of**  
**Boise Cascade/South Landfill**

Surface Water Body	Descriptor <sup>a</sup>	Length of Reach	Flow Characteristics (cfs) <sup>b</sup>	Length of Wetlands
Series of Unnamed Streams	Minimal stream	1.25 miles	< 10 (estimate)	0.1 mile
Missisquoi River	Large Stream	13.75 miles	1,577	5 miles

<sup>a</sup>Minimal stream. Small to moderate stream. Moderate to large stream. Large stream to river. Very large river. Coastal tidal waters. Shallow ocean zone or Great Lake. Deep ocean zone or Great Lake. Three-mile mixing zone in quiet flowing river.

<sup>b</sup>Cubic feet per second.

[56,58,60]

The surface water quality classification for the Missisquoi River and its tributaries is class B. Class B waters are targeted to achieve and maintain a high level of quality for aesthetics and aquatic habitats, as well as to be used as a public water supply with filtration and disinfection, swimming, and recreation [64]. The Missisquoi River, below the Sheldon Springs dam, is used for all types of recreation [61]. There are no drinking water intakes along the surface water pathway [19].

Along the 15-mile downstream pathway are primarily warm-water fisheries. Sport fishing includes smallmouth bass, walleye, and occasional brown trout [21,23,28]. Brown trout are stocked in the Missisquoi River, upstream of Sheldon Springs, in the area of Berkshire/Richford [62]. According to officials of the Vermont Department of Fish and Wildlife and local officials, fishing has been observed in the vicinity of the Rock-Tenn Mill. Fishing occurs at rapids below the dam (upstream of the hydropower bypass outlet). In addition, there has been at least one sighting of a fisherman from the bridge just upstream of the dam [2,22,24,28]. The closest documented fishery to the Boise Cascade/South Landfill is located in the Missisquoi River where the last north flowing unnamed stream meets the Missisquoi River [2].

According to the National Wetland Inventory Maps, there is 0.1 mile of wetland frontage along the northernmost unnamed stream on the surface water pathway [56]. Along the southern edge of the landfill, there are some areas of standing water [13]. These areas of standing water are not indicated on the National Wetland Inventory Map as wetlands [56]. The soils are mapped as Carlisle muck, a poorly drained woody organic deposit [52]. There are approximately 5 miles of wetland frontage along the Missisquoi River [56].

There are two state-designated threatened species along the Missisquoi River in the vicinity of Sheldon Springs. Both are river/bank shoreline or wetland species [20,41].

During onsite activity by VTAEC and Wagner, Heindel, and Noyes (contracted by Boise Cascade Corp.), leachate was observed discoloring the stream at the northern edge of the landfill [42].

Upstream and downstream sampling of the stream that flows along the northern margin of the landfill was conducted by Dubois and King of Randolph, Vermont, in 1982 for the WH&N study. Analyses for pH, conductivity, organic compounds, phenols, and iron led Dubois and King and WH&N to conclude that the leachate seeps from the landfill are affecting this tributary. Analytical results detected an increase of phenol, iron, sulfate, TOC, and TOX concentrations at the downstream location [42].

The TRP concentration was 40 ppb in the stream adjacent to the landfill in August 1982 [69]. At the time, it was thought that TRP concentrations included concentrations of PCP and MBT. Later it was determined that TRPs do not include either PCP or MBT, the major contaminants of concern at the landfill [11,32].

As part of the 5-year post closure monitoring, ABB Environmental Services sampled surface water at four locations on a semi-annual basis [32]. The locations are indicated on Figure 2 as SW-201, 202, 203, and 204. Results indicate some contaminants at SW-201 and SW-202, the locations closest to the landfill, at concentrations higher than in the stream to the west of the landfill. These contaminants are arsenic, barium, calcium, iron, magnesium, manganese, potassium, and sodium [6,34]. There is no upstream reference sample collected from the same stream as SW-201 and SW-202 for comparison. Concentrations of contaminants decrease in the downstream samples. No VOCs or SVOCs have been detected in the surface water sampling [32].

On May 17, 1995, CDM Federal collected five sediment samples at Boise Cascade/South Landfill. Sediment sample locations are shown in Figure 3 and reported in Table 10. A reference sample (SD-01) was collected from the unnamed stream at a location presumed to be unaffected by onsite contaminants. All sediment samples were submitted for the analysis of full TCL organic compounds and full TAL inorganic analytes through EPA CLP RAS [15].

TABLE 10

**Sediment Sample Summary: Boise Cascade/South Landfill  
Samples Collected by CDM Federal on May 17, 1995**

Sample Location No.	Traffic Report No.	Time	Remarks	Sample Source
SD-01	AKG11 (O) MAHF11 (I)	1425	Grab	Sediment sample collected from the unnamed stream; approximately 250 feet from the northern base of the landfill; reference sample
SD-02	AKG12 (O) MAHF12 (I)	1315	Grab	Sediment sample collected from the unnamed stream; adjacent to the north side of the landfill
SD-03	AKG13 (O) MAHF13 (I)	1315	Grab	Duplicate of SD-02 for QC
SD-04	AKG14 (O) MAHF14 (I)	1115	Grab	Sediment sample collected from the unnamed stream, downstream of the landfill; same location as previous monitoring location SW-202
SD-05	AKG15 (O) MAHF15 (I)	1645	Grab	Sediment sample collected from the ponded area to the south of the landfill
EB-SD	AKG20 (O) MAHF20 (I)	0900	Grab	Sediment sampling equipment rinsate; for QC of decontamination procedures

O = Organic Analysis

I = Inorganic Analysis

[13,15]

Table 11 presents a summary of compounds and analytes detected through CLP analysis of sediment samples. For each sample location, a compound or analyte is listed if it has been detected at three or more times the reference sample concentration. Compounds or analytes that occur at a concentration equal to or greater than three times the reference concentration (sample location SD-01) are designated by their approximate relative multiple above the reference concentration. If the compound or analyte is not detected in the reference sample, the SQL (for organic analysis) or SDL (for inorganic analysis) is used as the reference value. Accordingly, a compound or analyte is listed by the multiple above its SQL or SDL only if it occurs at a value equal to or greater than the corresponding SQL or SDL in the reference sample.

Sample results qualified with a "J" in the analytical results tables are considered approximate because of limitations identified during CLP data validation. Organic sample results reported at concentrations below quantitation limits and confirmed by mass spectroscopy are also considered approximate and are qualified by a "J". The complete analytical results of CDM Federal sampling activities, including sample quantitation and sample detection limits, are presented in Attachment A (organic results) and Attachment B (inorganic results).

**TABLE 11**  
**Summary of Analytical Results**  
**Sediment Sample Analysis for**  
**Boise Cascade/South Landfill**

Sample Location No.	Compound/Analyte	Concentration	Reference Concentration	Comments
SD-04	Acetone	31 J $\mu\text{g/kg}$	18 UJ $\mu\text{g/kg}$	1.7 x SQL
	2-Butanone	24 $\mu\text{g/kg}$	18 U $\mu\text{g/kg}$	1.3 x SQL
	Manganese	555 mg/kg	163 mg/kg	3.4 x REF
SD-05	Acetone	49 J $\mu\text{g/kg}$	18 UJ $\mu\text{g/kg}$	2.7 x SQL
	2-Butanone	32 $\mu\text{g/kg}$	18 U $\mu\text{g/kg}$	1.8 x SQL
	Cobalt	17.6 mg/kg	4.3 mg/kg	4.1 x REF

mg/kg = Milligrams per kilogram (equivalent to parts per million or ppm).

$\mu\text{g/kg}$  = Micrograms per kilogram (equivalent to parts per billion or ppb).

REF = Reference concentration.

SQL = Sample quantitation limit.

U = Indicates the sample was analyzed but not detected and reports the detection value.

J = Quantitation approximate due to limitations identified in quality control review.

UJ = The reported quantitation limits are qualified estimated.

Note: The precision of the entries in the "Comments" column is governed by the rules of significant digits.  
[46,47]

Acetone, 2-butanone, manganese, and cobalt were detected in sediment samples collected at Boise Cascade/South Landfill. Manganese and cobalt were also detected at significant concentrations in the source samples collected at the landfill. Acetone and 2-butanone were not detected in source samples; the origin of these substances is unknown. Both of these substances are commonly used as cleaning fluids and may be laboratory contaminants [50]. 2-Butanone has previously been detected at significant concentrations in groundwater samples collected from monitoring wells onsite [34].

## **SOIL EXPOSURE PATHWAY**

There is no resident population on the property or within 200 feet of the landfill [13,58]. The nearest residence is 1,000 feet northwest of the landfill [12,58]. Population within 1 mile of the landfill is estimated to be 141 [36]. No schools or day-care centers are on the property or within 200 feet. Sheldon Springs Elementary School is located 600 feet north of the landfill [12,58]. Student and faculty/staff population at the school is 390 [29]. A fence separates the school playground from the Boise Cascade property [13]. No signs of public recreational use of the property was documented during the field events [13]. No terrestrial sensitive environments are known to be on the property [41,58].

During CDM Federal's onsite reconnaissance activities at Boise Cascade/South Landfill, the field team observed a hole in the landfill cap (approximately 1 foot diameter), presumably dug into the landfill by an animal. Chunks of greenish paper sludge were evident surrounding the hole. Other spots exposed what appeared to be dried paper sludge, tree bark, and miscellaneous trash. A few rusty drums were observed in a ditch approximately 100 feet north of the landfill [13].

A sample collected from the landfill cap in 1987, detected the following metals above the PQL: magnesium, sodium, barium, chromium, cobalt, copper, iron, lead, manganese, nickel, vanadium, zinc, aluminum, arsenic, and potassium. There is no reference sample for comparison. Only metals analysis was performed on this one sample [32].

On May 17, 1995, CDM Federal collected seven surface soil samples at Boise Cascade/South Landfill. Sample locations are shown in Figure 3 and reported in Table 3. A reference sample (SS-01) was collected from a wooded area north of the landfill at a location presumed to be unaffected by onsite contaminants. All surface soil samples were submitted for the analysis of full TCL organic compounds and full TAL inorganic analytes through EPA CLP RAS. Substances detected at significant concentrations in surficial samples collected from the landfill cap include bis(2-ethylhexyl)phthalate, calcium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, and cyanide [46,47]. These contaminants may be constituents of the sludge used to form the soil/sludge landfill cap material.

## **AIR PATHWAY**

The nearest potential receptors of airborne contaminants are the students, faculty, and staff at the Sheldon Springs Elementary School located approximately 600 feet north of the landfill [12,58]. Faculty and student population at the school is 390 [29]. Worker population within 4 miles of the property is not documented; there are 142 employees at the Rock-Tenn Company in Sheldon Springs [14]. There is no population present on the landfill. Sensitive environments

within 4 miles of the landfill include over 1,200 acres of wetlands and habitats for state-listed threatened species [20,41,56].

The population within 4 miles of landfill, including the school population, is estimated to be 2,986 [36]. Table 12 presents the estimated populations existing within various distance rings from the landfill. The Frost Associates report generated for Boise Cascade/North Landfill/Lagoon SIP, which is located 3,500 feet, or 0.65 mile north of Boise Cascade/South Landfill, was used to estimate populations within distance rings from Boise Cascade/South Landfill [36,58]. Because of the rural surroundings of these two locations, it is expected that the actual populations for the distance rings surrounding the two locations are similar. However, the 0.00 to 0.25-mile and 0.25 to 0.50-mile distance rings will show the differences between the two site locations. There are no residences within 0.25 mile of the landfill [58]. Therefore, the population within 0.25 mile of the property, as documented by Frost Associates, has been added to the 0.25 to 0.50-mile distance ring.

**TABLE 12**  
**Estimated Population within 4 Miles of**  
**Boise Cascade/South Landfill**

Radial Distance from Boise Cascade/South Landfill (miles)	Estimated Population
0.00 - 0.25	390
> 0.25 - 0.50	36
> 0.50 - 1.00	105
> 1.00 - 2.00	512
> 2.00 - 3.00	847
> 3.00 - 4.00	1,096
TOTAL	2,986

[29,36,58]

No air sampling was conducted as part of this SIP or any previous investigation. Air monitoring for detections of VOCs was performed during the October 4, 1994 onsite reconnaissance and during the May 17, 1995 sampling event. For the reconnaissance, the instrument used to monitor concentrations of VOCs was an Organic Vapor Monitor (OVM) 580B equipped with a 11.7 eV lamp. No elevated readings occurred during the reconnaissance activities. The instrument used during the sampling event was a photoionization detector (PID) equipped with an 11.7 eV lamp. The background concentration of VOCs was 0.3 parts per million (ppm). No sustained elevated readings were detected in the breathing zone while the PID was operational. An elevated reading of 8.0 ppm was measured in the headspace of monitoring well MW-101 upon opening the well cap [13,15].

## SUMMARY

Boise Cascade/South Landfill is a privately owned inactive landfill located off Poor Farm Road in Sheldon Springs in northwestern Vermont. The landfill occupies approximately 8 acres on the western side of Poor Farm Road. The area surrounding the landfill is rural and wooded. Fewer than 10 residences are located within 0.5 mile. The Sheldon Springs Elementary School and a municipal water supply well, Sheldon Springs Well No. 2, are located 0.2 mile north of the landfill. An unnamed stream flows west through the property, along the northern boundary of the landfill.

Boise Cascade Corporation is the current owner of the Boise Cascade/South Landfill property. From 1982 to 1989, Boise Cascade Corporation owned a paper mill facility in Sheldon Springs. The Boise Cascade/South Landfill was reportedly never used by Boise Cascade Corporation for landfilling activity. The landfill property was obtained by Boise Cascade Corporation as part of the transfer of ownership of the paper mill in 1982. The previous owner and operator of the landfill and the Boise Cascade paper mill was Saxon Industries. Saxon Industries began landfill operations at this location in 1974 as a result of the construction of a wastewater treatment lagoon at the location of its former landfill in Sheldon. The landfill was used for the disposal of tree bark and paper sludge produced by Saxon Industry's paper mill in Sheldon Spring until 1982. Boise Cascade Corporation closed the landfill after purchasing the paper mill from Saxon Industries in 1982. The Closure Plan was reviewed and approved by the Vermont Agency of Environmental Conservation (VTAEC). A soil/sludge final cap was installed to close the landfill.

Onsite monitoring wells and Sheldon Springs Well No. 2 have been monitored since 1983. Methylene bithiocyanate was detected at a concentration of 7.4 parts per billion (ppb) in a 1982 analysis of a sample from the Sheldon Springs distribution system. Pentachlorophenol (PCP) was detected at trace levels (less than 1 ppb) in a sample from monitoring well SB-2 in August 1983. In samples obtained from 1982 to 1986 from Sheldon Springs Well No. 2, phenol concentrations ranged from 0.02 to 0.08 parts per million (ppm). Substances detected at concentrations significantly above reference concentrations in overburden at the landfill include toluene, phenol, 2-butanone, aluminum, arsenic, barium, calcium, iron, magnesium, manganese, potassium, sodium, and zinc. Substances detected at significant concentrations in bedrock monitoring wells include benzoic acid, bis(2-ethylhexyl)phthalate, aluminum, arsenic, barium, iron, lead, magnesium, manganese, potassium, and sodium.

On May 17, 1995, CDM Federal collected seven waste/source samples, three groundwater samples, and five sediment samples at Boise Cascade/South Landfill. Waste/source and sediment samples were submitted for the analysis of full Target Compound List (TCL) organic compounds and the analysis of full Target Analyte List (TAL) inorganic analytes through EPA Contract Laboratory Program (CLP) Routine Analytical Services (RAS). All groundwater samples were submitted for the analysis of TCL pesticides, TCL polychlorinated biphenyls (PCBs), and full TAL inorganic analytes through EPA CLP RAS. Substances detected at significant concentrations in waste/source samples collected from the landfill cap include bis(2-ethylhexyl)phthalate, calcium, cobalt, copper, iron, magnesium, manganese, nickel, potassium, and cyanide. These contaminants are believed to be constituents of the sludge used to form the soil/sludge landfill cap material. Sodium was the only substance detected significantly above the

reference concentration in the drinking water samples. While there is no federally established Maximum Contaminant Level established for sodium, the concentration of sodium detected in the drinking water samples is above the Drinking Water Equivalent Level of 20,000 micrograms per liter. Acetone, 2-butanone, manganese, and cobalt were detected in sediment samples collected at Boise Cascade/South Landfill.

The village of Sheldon Springs is supplied drinking water by a bedrock groundwater well (Sheldon Springs Well No. 2) located 0.2 mile, or approximately 1,000 feet, north of the landfill. Sheldon Springs Well No. 2 currently supplies drinking water to approximately 80 connections, or an estimated 750 people. The village of Sheldon is supplied drinking water by an overburden groundwater well, located 1.35 miles east southeast of the landfill, and serves approximately 300 people. The village of East Highgate (approximately 50 people) is served drinking water by a groundwater spring located 1.8 mile northwest of the landfill. A groundwater supply is proposed at Green Mountain Estates in Highgate, approximately 3.05 miles west of the landfill, which would serve approximately 68 people. Wellhead protection areas are associated with all of these wells. The nearest private well identified by CDM Federal is located approximately 0.5 mile south of the landfill. An estimate 2,699 people are served drinking water by groundwater sources within 4 miles of Boise Cascade/South Landfill.

As runoff is expected to drain radially off the landfill, the most upstream probable point of entry of contaminants migrating from the landfill to the surface water pathway is located in the northeast corner of the landfill, on the unnamed stream bordering the landfill to the north. The surface water pathway flows from the PPE, westward along the unnamed stream approximately 0.25 mile, where it joins a north flowing unnamed stream. It flows on this stream approximately 0.5 mile where it joins another north flowing unnamed stream. This stream flows approximately another 0.5 mile where it joins the Missisquoi River. The surface water pathway continues for approximately 13.75 miles in a generally westward direction.

The Missisquoi River, below the Sheldon Springs dam, is used for all types of recreation. There are no drinking water intakes along the surface water pathway. Along the 15-mile downstream pathway are primarily warm-water fisheries. Sport fishing includes smallmouth bass, walleye, and occasional brown trout. The closest documented fishery to the Boise Cascade/South Landfill is located in the Missisquoi River where the northernmost unnamed stream along the surface water pathway meets the Missisquoi River. According to the National Wetland Inventory Maps, there is 0.1 mile of wetland frontage along the last north flowing unnamed stream. Along the southern edge of the landfill, there are some areas of standing water that are not indicated on the National Wetland Inventory Map as wetlands. The soils are mapped as Carlisle muck, a poorly drained woody organic deposit. There are approximately 5 miles of wetland frontage along the Missisquoi River. There are two state-designated threatened species along the Missisquoi River in the vicinity of Sheldon Springs.

There is no resident population on the property or within 200 feet of the landfill. The nearest residence is 1,000 feet northwest of the property. Population within 1 mile of the landfill is estimated to be 141. No schools or day-care centers are on the property or within 200 feet. Sheldon Springs Elementary School is located 600 feet north of the landfill. Student and faculty/staff population at the school is 390. A fence separates the school playground from the

Boise Cascade property. No signs of public recreational use of the property was documented during the field events. No terrestrial sensitive environments are known to be on the property.

Sensitive environments within 4 miles of the landfill include over 1,200 acres of wetlands and habitats for state-listed threatened species. The population within 4 miles of landfill, including the school population, is estimated to be 2,986.

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**ATTACHMENT A**

**Boise Cascade/South Landfill**

**Organic Sample Analytical Results  
CDM Federal Programs Corporation**

**May 17, 1995  
(sampling date)**

CASE NO: 23591  
SDG NO: AKG16

Table III Page 1 of 13  
SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS VT  
LABORATORY: ENVSYS

EPA SAMPLE NUMBER:	AKG19	AKG20	AKG22		
SAMPLE LOCATION:	EB-S5	EB-S0	TB-01		
LABORATORY SAMPLE NUMBER:	95051123	95051124	95051126		
SAMPLE TYPE:	Equipment Blank	Equipment Blank	Trip Blank		
MATRIX/ANALYSIS:	WATER/LOW	WATER/LOW	WATER/LOW		
DILUTION FACTOR:	1.0	1.0	1.0		
DATE SAMPLED:	05/17/95	05/17/95	05/17/95		
DATE ANALYZED:	05/26/95	05/26/95	05/26/95		
PERCENT MOISTURE:					
VOA					
Chloromethane	10 U	10 U	10 U		
Bromomethane	10 U	10 U	10 U		
Vinyl Chloride	10 U	10 U	10 U		
Chloroethane	10 U	10 U	10 U		
Methylene Chloride	10 U	10 U	10 U		
Acetone	12 U	10 U	10 U		
Carbon Disulfide	10 U	10 U	10 U		
1,1-Dichloroethene	10 U	10 U	10 U		
1,1-Dichloroethane	10 U	10 U	10 U		
1,2-Dichloroethene (total)	10 U	10 U	10 U		
Chloroform	10 U	10 U	10 U		
1,2-Dichloroethane	10 U	10 U	10 U		
2-Butanone	19 U	10 U	10 U		
1,1,1-Trichloroethane	10 U	10 U	10 U		
Carbon Tetrachloride	10 U	10 U	10 U		
Bromodichloromethane	10 U	10 U	10 U		
1,2-Dichloropropane	10 U	10 U	10 U		
cis-1,3-Dichloropropene	10 U	10 U	10 U		
Trichloroethene	10 U	10 U	10 U		
Dibromochloromethane	10 U	10 U	10 U		
1,1,2-Trichloroethane	10 U	10 U	10 U		
Benzene	10 U	10 U	10 U		
trans-1,3-Dichloropropene	10 U	10 U	10 U		
Bromoform	10 U	10 U	10 U		
4-Methyl-2-Pentanone	10 U	10 U	10 U		
2-Hexanone	10 U	10 U	10 U		
Tetrachloroethene	10 U	10 U	10 U		
1,1,2,2-Tetrachloroethane	10 U	10 U	10 U		
Toluene	10 U	10 U	10 U		
Chlorobenzene	10 U	10 U	10 U		
Ethylbenzene	10 U	10 U	10 U		
Styrene	10 U	10 U	10 U		
Xylene (total)	10 U	10 U	10 U		

FILENAME: AKG16.SDG DATE: 06/27/95 TIME: 11:46 CADRE 2.10

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Water units are reported in ug/L.  
Soil units are reported in ug/kg.

CASE NO: 23591  
SDG NO: AKG16Table 111 Page 2 of 13  
SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS VT  
LABORATORY: ENVSYS

EPA SAMPLE NUMBER:	AKG19	AKG20			
SAMPLE LOCATION:	EB-SS	EB-SD			
LABORATORY SAMPLE NUMBER:	95051123	95051124			
SAMPLE TYPE:	Equipment Blank	Equipment Blank			
MATRIX/ANALYSIS:	WATER/LOW	WATER/LOW			
DILUTION FACTOR:	1.0	1.0			
DATE SAMPLED:	05/17/95	05/17/95			
DATE EXTRACTED:	05/19/95	05/19/95			
DATE ANALYZED:	06/01/95	06/01/95			
PERCENT MOISTURE:					
BNA					
Phenol	10 U	10 U			
bis(2-Chloroethyl) ether	10 U	10 U			
2-Chlorophenol	10 U	10 U			
1,3-Dichlorobenzene	10 U	10 U			
1,4-Dichlorobenzene	10 U	10 U			
1,2-Dichlorobenzene	10 U	10 U			
2-Methylphenol	10 U	10 U			
2,2'-oxybis(1-Chloropropane	10 U	10 U			
4-Methylphenol	10 U	10 U			
N-Nitroso-di-n-propylamine	10 U	10 U			
Hexachloroethane	10 U	10 U			
Nitrobenzene	10 U	10 U			
Isophorone	10 U	10 U			
2-Nitrophenol	10 U	10 U			
2,4-Dimethylphenol	10 U	10 U			
bis(2-Chloroethoxy) methane	10 U	10 U			
2,4-Dichlorophenol	10 U	10 U			
1,2,4-Trichlorobenzene	10 U	10 U			
Naphthalene	10 U	10 U			
4-Chloroaniline	10 U	10 U			
Hexachlorobutadiene	10 U	10 U			
4-Chloro-3-methylphenol	10 U	10 U			
2-Methylnaphthalene	10 U	10 U			
Hexachlorocyclopentadiene	10 U	10 U			
2,4,6-Trichlorophenol	10 U	10 U			
2,4,5-Trichlorophenol	25 U	25 U			
2-Chloronaphthalene	10 U	10 U			
2-Nitroaniline	25 U	25 U			
Dimethylphthalate	10 U	10 U			
Acenaphthylene	10 U	10 U			
2,6-Dinitrotoluene	10 U	10 U			
3-Nitroaniline	25 U	25 U			
Acenaphthene	10 U	10 U			
2,4-Dinitrophenol	25 U	25 U			
4-Nitrophenol	25 U	25 U			
Dibenzofuran	10 U	10 U			
2,4-Dinitrotoluene	10 U	10 U			
Diethylphthalate	10 U	10 U			
4-Chlorophenyl-phenyl ether	10 U	10 U			
Fluorene	10 U	10 U			
4-Nitroaniline	25 U	25 U			
4,6-Dinitro-2-methylphenol	25 U	25 U			
N-nitrosodiphenylamine	10 U	10 U			
4-Bromophenyl-phenylether	10 U	10 U			
Hexachlorobenzene	10 U	10 U			
Pentachlorophenol	25 U	25 U			
Phenanthrene	10 U	10 U			
Anthracene	10 U	10 U			
Carbazole	10 U	10 U			
Di-n-butylphthalate	10 U	10 U			
Fluoranthene	10 U	10 U			
Pyrene	10 U	10 U			
Butylbenzylphthalate	10 U	10 U			
3,3'-Dichlorobenzidine	10 U	10 U			
Benzo(a)anthracene	10 U	10 U			
Chrysene	10 U	10 U			
bis(2-Ethylhexyl)phthalate	10 U	10 U			
Di-n-octylphthalate	10 U	10 U			
Benzo(b)fluoranthene	10 U	10 U			
Benzo(k)fluoranthene	10 U	10 U			
Benzo(a)pyrene	10 U	10 U			
Indeno(1,2,3-cd)pyrene	10 U	10 U			
Dibenz(a,h)anthracene	10 U	10 U			
Benzo(g,h,i)perylene	10 U	10 U			

FILENAME: AKG16.SDG DATE: 06/27/95 TIME: 11:49 CADRE 2.10

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Water units are reported in ug/L.  
Soil units are reported in ug/Kg.

CASE NO: 23591  
SDG NO: AKG16

PESTICIDE/FUG ADDENDUM ANALYSIS

Table III Page 3 of 13

SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS VT

LABORATORY: ENVSYS

EPA SAMPLE NUMBER:	AKG16	AKG17	AKG18	AKG19	AKG20
SAMPLE LOCATION:	GW-01	DW-01	DW-02	EB-SS	EB-SD
LABORATORY SAMPLE NUMBER:	95051120	95051121	95051122	95051123	95051124
SAMPLE TYPE:	Routine Sample	Routine Sample	Routine Sample	Equipment Blank	Equipment Blank
MATRIX/ANALYSIS:	WATER/LOW	WATER/LOW	WATER/LOW	WATER/LOW	WATER/LOW
DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:	05/17/95	05/17/95	05/17/95	05/17/95	05/17/95
DATE EXTRACTED:	05/19/95	05/19/95	05/19/95	05/19/95	05/19/95
DATE ANALYZED:	06/21/95	06/21/95	06/21/95	06/21/95	06/21/95
PERCENT MOISTURE:					
PES					
alpha-BHC	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
beta-BHC	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
delta-BHC	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
gamma-BHC (Lindane)	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Aldrin	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Heptachlor epoxide	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Endosulfan I	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Dieldrin	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDE	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan II	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDD	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
4,4'-DDT	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Methoxychlor	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Endrin ketone	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
Endrin aldehyde	0.10 U	0.10 U	0.10 U	0.10 U	0.10 U
alpha-Chlordane	0.050 U	0.050 U	0.058 U	0.050 U	0.050 U
gamma-Chlordane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Toxaphene	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Aroclor-1016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1221	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Aroclor-1232	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1242	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1248	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1254	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Aroclor-1260	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

FILENAME: AKG16.SDG DATE: 06/27/95 TIME: 11:51 CADRE 2.10

PAGE: 1

Water units are reported in ug/L.  
Soil units are reported in ug/Kg.

CASE NO: 23591  
SDG NO: AKG16

PESTICIDE/PCB AQUEOUS ANALYSIS

Table 111 Page 4 of 13  
SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS VT  
LABORATORY: ENVSYS

EPA SAMPLE NUMBER:	AKG21				
SAMPLE LOCATION:	EB-GW				
LABORATORY SAMPLE NUMBER:	95051125				
SAMPLE TYPE:	Equipment Blank				
MATRIX/ANALYSIS:	WATER/LOW				
DILUTION FACTOR:	1.0				
DATE SAMPLED:	05/17/95				
DATE EXTRACTED:	05/19/95				
DATE ANALYZED:	06/21/95				
PERCENT MOISTURE:					
PES					
alpha-BHC	0.050	U			
beta-BHC	0.050	U			
delta-BHC	0.050	U			
gamma-BHC (Lindane)	0.050	U			
Heptachlor	0.050	U			
Aldrin	0.050	U			
Heptachlor epoxide	0.050	U			
Endosulfan I	0.050	U			
Dieldrin	0.10	U			
4,4'-DDE	0.10	U			
Endrin	0.10	U			
Endosulfan II	0.10	U			
4,4'-DDD	0.10	U			
Endosulfan sulfate	0.10	U			
4,4'-DDT	0.10	U			
Methoxychlor	0.50	U			
Endrin ketone	0.10	U			
Endrin aldehyde	0.10	U			
alpha-Chlordane	0.050	U			
gamma-Chlordane	0.050	U			
Toxaphene	5.0	U			
Aroclor-1016	1.0	U			
Aroclor-1221	2.0	U			
Aroclor-1232	1.0	U			
Aroclor-1242	1.0	U			
Aroclor-1248	1.0	U			
Aroclor-1254	1.0	U			
Aroclor-1260	1.0	U			

FILENAME: AKG16.SDG DATE: 06/27/95 TIME: 11:51 CADRE 2.10

PAGE: 2

Water units are reported in ug/L.  
Soil units are reported in ug/Kg.

CASE NO: 23591  
SDG NO: AKG04

Table III Page 5 of 13  
SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS, VT  
LABORATORY: ENVSYS

EPA SAMPLE NUMBER: SAMPLE LOCATION: LABORATORY SAMPLE NUMBER: SAMPLE TYPE: MATRIX/ANALYSIS: DILUTION FACTOR: DATE SAMPLED: DATE ANALYZED: PERCENT MOISTURE:	AKG04 SS-01 95051108 Routine Sample SOIL/LOW 1.0 05/17/95 05/24/95 34	AKG05 SS-02 95051109 Routine Sample SOIL/LOW 1.0 05/17/95 05/24/95 44	AKG06 SS-03 95051110 Routine Sample SOIL/LOW 1.0 05/17/95 05/25/95 43	AKG07 SS-04 95051111 Routine Sample SOIL/LOW 1.0 05/17/95 05/24/95 20	AKG08 SS-05 95051112 Routine Sample SOIL/LOW 1.0 05/17/95 05/24/95 39
VOA					
Chloromethane	15 U	18 U	18 U	12 U	16 U
Bromomethane	15 U	18 U	18 U	12 U	16 U
Vinyl Chloride	15 U	18 U	18 U	12 U	16 U
Chloroethane	15 U	18 U	18 U	12 U	16 U
Methylene Chloride	120 UJ	75 UJ	18 UJ	33 UJ	64 UJ
Acetone	16 U	18 U	18 UJ	12 U	16 U
Carbon Disulfide	15 U	18 U	18 U	12 U	16 U
1,1-Dichloroethene	15 U	18 U	18 U	12 U	16 U
1,1-Dichloroethane	15 U	18 U	18 U	12 U	16 U
1,2-Dichloroethene (total)	15 U	18 U	18 U	12 U	16 U
Chloroform	15 U	18 U	18 U	12 U	16 U
1,2-Dichloroethane	15 U	18 U	18 U	12 U	16 U
2-Butanone	15 U	18 U	18 UJ	12 U	16 U
1,1,1-Trichloroethane	15 U	18 U	18 U	12 U	16 U
Carbon Tetrachloride	15 U	18 U	18 U	12 U	16 U
Bromodichloromethane	15 U	18 U	18 U	12 U	16 U
1,2-Dichloropropane	15 U	18 U	18 U	12 U	16 U
cis-1,3-Dichloropropene	15 U	18 U	18 U	12 U	16 U
Trichloroethene	15 U	18 U	18 U	12 U	16 U
Dibromochloromethane	15 U	18 U	18 U	12 U	16 U
1,1,2-Trichloroethane	15 U	18 U	18 U	12 U	16 U
Benzene	15 U	18 U	18 U	12 U	16 U
trans-1,3-Dichloropropene	15 U	18 U	18 U	12 U	16 U
Bromoform	15 U	18 U	18 U	12 U	16 U
4-Methyl-2-Pentanone	15 U	18 U	18 U	12 U	16 U
2-Hexanone	15 U	18 U	18 U	12 U	16 U
Tetrachloroethene	15 U	18 U	18 U	12 U	16 U
1,1,2,2-Tetrachloroethane	15 U	18 U	18 U	12 U	16 U
Toluene	15 U	18 U	18 U	12 U	16 U
Chlorobenzene	15 U	18 U	18 U	12 U	16 U
Ethylbenzene	15 U	18 U	18 U	12 U	16 U
Styrene	15 U	18 U	18 U	12 U	16 U
Xylene (total)	15 U	18 U	18 U	12 U	16 U

FILENAME: AKG04.SDG DATE: 06/27/95 TIME: 16:45 CADRE 2.10

PAGE: 1

Water units are reported in ug/L.  
Soil units are reported in ug/kg.

CASE NO: 23591  
SDG NO: AKG04SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS, VT

LABORATORY: ENVSYS

EPA SAMPLE NUMBER:	AKG09	AKG10	AKG11	AKG12	AKG13
SAMPLE LOCATION:	SS-06	SS-07	SD-01	SD-02	SD-03
LABORATORY SAMPLE NUMBER:	95051113	95051114	95051115	95051116	95051117
SAMPLE TYPE:	Routine Sample	Routine Sample	Routine Sample	Routine Sample	Routine Sample
MATRIX/ANALYSIS:	SOIL/LOW	SOIL/LOW	SOIL/LOW	SOIL/LOW	SOIL/LOW
DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:	05/17/95	05/17/95	05/17/95	05/17/95	05/17/95
DATE ANALYZED:	05/24/95	05/25/95	05/26/95	05/25/95	05/26/95
PERCENT MOISTURE:	28	23	45	18	20
VOA					
Chloromethane	14 U	13 U	18 U	12 U	12 U
Bromomethane	14 U	13 U	18 U	12 U	12 U
Vinyl Chloride	14 U	13 U	18 U	12 U	12 U
Chloroethane	14 U	13 U	18 U	12 U	12 U
Methylene Chloride	54 UJ	13 UJ	18 UJ	12 UJ	12 UJ
Acetone	14 U	13 UJ	18 UJ	12 UJ	12 UJ
Carbon Disulfide	14 U	13 U	18 U	7 U	12 UJ
1,1-Dichloroethene	14 U	13 U	18 U	12 U	12 U
1,1-Dichloroethane	14 U	13 U	18 U	12 U	12 U
1,2-Dichloroethene (total)	14 U	13 U	18 U	12 U	12 U
Chloroform	14 U	13 U	18 U	12 U	12 U
1,2-Dichloroethane	14 U	13 U	18 U	12 U	12 U
2-Butanone	14 U	13 UJ	18 U	12 UJ	12 U
1,1,1-Trichloroethane	14 U	13 U	18 U	12 U	12 U
Carbon Tetrachloride	14 U	13 U	18 U	12 U	12 U
Bromodichloromethane	14 U	13 U	18 U	12 U	12 U
1,2-Dichloropropane	14 U	13 U	18 U	12 U	12 U
cis-1,3-Dichloropropene	14 U	13 U	18 U	12 U	12 U
Trichloroethene	14 U	13 U	18 U	12 U	12 U
Dibromochloromethane	14 U	13 U	18 U	12 U	12 U
1,1,2-Trichloroethane	14 U	13 U	18 U	12 U	12 U
Benzene	14 U	13 U	18 U	12 U	12 U
trans-1,3-Dichloropropene	14 U	13 U	18 U	12 U	12 U
Bromoform	14 U	13 U	18 U	12 U	12 U
4-Methyl-2-Pentanone	14 U	13 U	18 U	12 U	12 U
2-Hexanone	14 U	13 U	18 U	12 U	12 U
Tetrachloroethene	14 U	13 U	18 U	12 U	12 U
1,1,2,2-Tetrachloroethane	14 U	13 U	18 U	12 U	12 U
Toluene	14 U	13 U	18 U	12 U	12 U
Chlorobenzene	14 U	13 U	18 U	12 U	12 U
Ethylbenzene	14 U	13 U	18 U	12 U	12 U
Styrene	14 U	13 U	18 U	12 U	12 U
Xylene (total)	14 U	13 U	18 U	12 U	12 U

FILENAME: AKG04.SDG DATE: 06/27/95 TIME: 16:45 CADRE 2.10

PAGE: 2

Water units are reported in ug/L.  
Soil units are reported in ug/Kg.

CASE NO: 23591  
SDG NO: AKG04SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS, VT

LABORATORY: ENVSYS

EPA SAMPLE NUMBER:	AKG14	AKG15			
SAMPLE LOCATION:	SD-04	SD-05			
LABORATORY SAMPLE NUMBER:	95051118	95051119			
SAMPLE TYPE:	Routine Sample	Routine Sample			
MATRIX/ANALYSIS:	SOIL/LOW	SOIL/LOW			
DILUTION FACTOR:	1.0	1.0			
DATE SAMPLED:	05/17/95	05/17/95			
DATE ANALYZED:	05/26/95	05/26/95			
PERCENT MOISTURE:	32	43			
VOA					
Chloromethane	15 U	18 U			
Bromomethane	15 U	18 U			
Vinyl Chloride	15 U	18 U			
Chloroethane	15 U	18 U			
Methylene Chloride	15 UJ	31 UJ			
Acetone	31 J	49 J			
Carbon Disulfide	15 U	18 U			
1,1-Dichloroethene	15 U	18 U			
1,1-Dichloroethane	15 U	18 U			
1,2-Dichloroethene (total)	15 U	18 U			
Chloroform	15 U	18 U			
1,2-Dichloroethane	15 U	18 U			
2-Butanone	24	32			
1,1,1-Trichloroethane	15 U	18 U			
Carbon Tetrachloride	15 U	18 U			
Bromodichloromethane	15 U	18 U			
1,2-Dichloropropane	15 U	18 U			
cis-1,3-Dichloropropene	15 U	18 U			
Trichloroethene	15 U	18 U			
Dibromochloromethane	15 U	18 U			
1,1,2-Trichloroethane	15 U	18 U			
Benzene	15 U	18 U			
trans-1,3-Dichloropropene	15 U	18 U			
Bromoform	15 U	18 U			
4-Methyl-2-Pentanone	15 U	18 U			
2-Hexanone	15 U	18 U			
Tetrachloroethene	15 U	18 U			
1,1,2,2-Tetrachloroethane	15 U	18 U			
Toluene	15 U	18 U			
Chlorobenzene	15 U	18 U			
Ethylbenzene	15 U	18 U			
Styrene	15 U	18 U			
Xylene (total)	15 U	18 U			
FILENAME: AKG04.SDG DATE: 06/27/95 TIME: 16:45 CADRE 2.10					
Water units are reported in ug/L. Soil units are reported in ug/Kg.					PAGE: 3

## SEMIVOLATILE SOIL ANALYSIS

Table III Page 8 of 13  
 SITE: BOISE CASCADE SOUTH LANDFILL  
 SHELTON SPRINGS, VT  
 LABORATORY: ENVSYS

CASE NO: 23591  
 SDG NO: AKG04

EPA SAMPLE NUMBER: SAMPLE LOCATION: LABORATORY SAMPLE NUMBER: SAMPLE TYPE: MATRIX/ANALYSIS: DILUTION FACTOR: DATE SAMPLED: DATE EXTRACTED: DATE ANALYZED: PERCENT MOISTURE:	AKG04 SS-01 95051108 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/05/95 34	AKG05 SS-02 95051109 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/05/95 44	AKG06 SS-03 95051110 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/05/95 43	AKG07 SS-04 95051111 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/06/95 20	AKG08 SS-05 95051112 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/06/95 39
BNA					
Phenol	500 U	590 U	580 U	410 U	540 U
bis(2-Chloroethyl) ether	500 U	590 U	580 U	410 U	540 U
2-Chlorophenol	500 U	590 U	580 U	410 U	540 U
1,3-Dichlorobenzene	500 U	590 U	580 U	410 U	540 U
1,4-Dichlorobenzene	500 U	590 U	580 U	410 U	540 U
1,2-Dichlorobenzene	500 U	590 U	580 U	410 U	540 U
2-Methylphenol	500 U	590 U	580 U	410 U	540 U
2,2'-oxybis(1-Chloropropane	500 U	590 U	580 U	410 U	540 U
4-Methylphenol	500 U	590 U	580 U	410 U	540 U
N-Nitroso-di-n-propylamine	500 U	590 U	580 U	410 U	540 U
Hexachloroethane	500 U	590 U	580 U	410 U	540 U
Nitrobenzene	500 U	590 U	580 U	410 U	540 U
Isophorone	500 U	590 U	580 U	410 U	540 U
2-Nitrophenol	500 U	590 U	580 U	410 U	540 U
2,4-Dimethylphenol	500 U	590 U	580 U	410 U	540 U
bis(2-Chloroethoxy) methane	500 U	590 U	580 U	410 U	540 U
2,4-Dichlorophenol	500 U	590 U	580 U	410 U	540 U
1,2,4-Trichlorobenzene	500 U	590 U	580 U	410 U	540 U
Naphthalene	500 U	590 U	580 U	410 U	540 U
4-Chloroaniline	500 U	590 U	580 U	410 U	540 U
Hexachlorobutadiene	500 U	590 U	580 U	410 U	540 U
4-Chloro-3-methylphenol	500 U	590 U	580 U	410 U	540 U
2-Methylnaphthalene	500 U	590 U	580 U	410 U	540 U
Hexachlorocyclopentadiene	500 U	590 U	580 U	410 U	540 U
2,4,6-Trichlorophenol	500 U	590 U	580 U	410 U	540 U
2,4,5-Trichlorophenol	1200 U	1400 U	1400 U	1000 U	1300 U
2-Chloronaphthalene	500 U	590 U	580 U	410 U	540 U
2-Nitroaniline	1200 U	1400 U	1400 U	1000 U	1300 U
Dimethylphthalate	500 U	590 U	580 U	410 U	540 U
Acenaphthylene	500 U	590 U	580 U	410 U	540 U
2,6-Dinitrotoluene	500 U	590 U	580 U	410 U	540 U
3-Nitroaniline	1200 U	1400 U	1400 U	1000 U	1300 U
Acenaphthene	500 U	590 U	580 U	410 U	540 U
2,4-Dinitrophenol	1200 U	1400 U	1400 U	1000 U	1300 U
4-Nitrophenol	1200 U	1400 U	1400 U	1000 U	1300 U
Dibenzofuran	500 U	590 U	580 U	410 U	540 U
2,4-Dinitrotoluene	500 U	590 U	580 U	410 U	540 U
Diethylphthalate	500 U	590 U	580 U	410 U	540 U
4-Chlorophenyl-phenyl ether	500 U	590 U	580 U	410 U	540 U
Fluorene	500 U	590 U	580 U	410 U	540 U
4-Nitroaniline	1200 U	1400 U	1400 U	1000 U	1300 U
4,6-Dinitro-2-methylphenol	1200 U	1400 U	1400 U	1000 U	1300 U
N-nitrosodiphenylamine	500 U	590 U	580 U	410 U	540 U
4-Bromophenyl-phenylether	500 U	590 U	580 U	410 U	540 U
Hexachlorobenzene	500 U	590 U	580 U	410 U	540 U
Pentachlorophenol	1200 U	1400 U	1400 U	1000 U	1300 U
Phenanthrene	500 U	590 U	580 U	410 U	540 U
Anthracene	500 U	590 U	580 U	410 U	540 U
Carbazole	500 U	590 U	580 U	410 U	540 U
Di-n-butylphthalate	500 U	590 U	580 U	410 U	540 U
Fluoranthene	500 U	590 U	580 U	410 U	540 U
Pyrene	500 U	590 U	580 U	410 U	540 U
Butylbenzylphthalate	500 U	590 U	580 U	410 U	540 U
3,3'-Dichlorobenzidine	500 U	590 U	580 U	410 U	540 U
Benzo(a)anthracene	500 U	590 U	580 U	410 U	540 U
Chrysene	500 U	590 U	580 U	410 U	540 U
bis(2-Ethylhexyl)phthalate	500 U	240 J	270 J	880	540 U
Di-n-octylphthalate	500 U	590 U	580 U	410 U	540 U
Benzo(b)fluoranthene	500 U	590 U	580 U	410 U	540 U
Benzo(k)fluoranthene	500 U	590 U	580 U	410 U	540 U
Benzo(a)pyrene	500 U	590 U	580 U	410 U	540 U
Indeno(1,2,3-cd)pyrene	500 U	590 U	580 U	410 U	540 U
Dibenz(a,h)anthracene	500 U	590 U	580 U	410 U	540 U
Benzo(g,h,i)perylene	500 U	590 U	580 U	410 U	540 U

FILENAME: AKG04.SDG DATE: 06/28/95 TIME: 09:20 CADRE 2.10

PAGE: 1

Water units are reported in ug/L.  
 Soil units are reported in ug/Kg.

## SEMIVOLATILE SOIL ANALYSIS

Table III Page 9 of 13

SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS, VTCASE NO: 23591  
SDG NO: AKG04

LABORATORY: ENVSY

EPA SAMPLE NUMBER: SAMPLE LOCATION: LABORATORY SAMPLE NUMBER: SAMPLE TYPE: MATRIX/ANALYSIS: DILUTION FACTOR: DATE SAMPLED: DATE EXTRACTED: DATE ANALYZED: PERCENT MOISTURE:	AKG09 SS-06 95051113 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/06/95 28	AKG10 SS-07 95051114 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/06/95 23	AKG11 SD-01 95051115 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/06/95 45	AKG12 SD-02 95051116 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/06/95 18	AKG13 SD-03 95051117 Routine Sample SOIL/LOW 1.0 05/17/95 05/22/95 06/06/95 20
BNA					
Phenol	460 U	430 U	600 U	400 U	410 U
bis(2-Chloroethyl) ether	460 U	430 U	600 U	400 U	410 U
2-Chlorophenol	460 U	430 U	600 U	400 U	410 U
1,3-Dichlorobenzene	460 U	430 U	600 U	400 U	410 U
1,4-Dichlorobenzene	460 U	430 U	600 U	400 U	410 U
1,2-Dichlorobenzene	460 U	430 U	600 U	400 U	410 U
2-Methylphenol	460 U	430 U	600 U	400 U	410 U
2,2'-oxybis(1-Chloropropane	460 U	430 U	600 U	400 U	410 U
4-Methylphenol	460 U	430 U	600 U	400 U	410 U
N-Nitroso-di-n-propylamine	460 U	430 U	600 U	400 U	410 U
Hexachloroethane	460 U	430 U	600 U	400 U	410 U
Nitrobenzene	460 U	430 U	600 U	400 U	410 U
Isophorone	460 U	430 U	600 U	400 U	410 U
2-Nitrophenol	460 U	430 U	600 U	400 U	410 U
2,4-Dimethylphenol	460 U	430 U	600 U	400 U	410 U
bis(2-Chloroethoxy) methane	460 U	430 U	600 U	400 U	410 U
2,4-Dichlorophenol	460 U	430 U	600 U	400 U	410 U
1,2,4-Trichlorobenzene	460 U	430 U	600 U	400 U	410 U
Naphthalene	460 U	430 U	600 U	400 U	410 U
4-Chloroaniline	460 U	430 U	600 U	400 U	410 U
Hexachlorobutadiene	460 U	430 U	600 U	400 U	410 U
4-Chloro-3-methylphenol	460 U	430 U	600 U	400 U	410 U
2-Methylnaphthalene	460 U	430 U	600 U	400 U	410 U
Hexachlorocyclopentadiene	460 U	430 U	600 U	400 U	410 U
2,4,6-Trichlorophenol	460 U	430 U	600 U	400 U	410 U
2,4,5-Trichlorophenol	1100 U	1000 U	1500 U	980 U	1000 U
2-Chloronaphthalene	460 U	430 U	600 U	400 U	410 U
2-Nitroaniline	1100 U	1000 U	1500 U	980 U	1000 U
Dimethylphthalate	460 U	430 U	600 U	400 U	410 U
Acenaphthylene	460 U	430 U	600 U	400 U	410 U
2,6-Dinitrotoluene	460 U	430 U	600 U	400 U	410 U
3-Nitroaniline	1100 U	1000 U	1500 U	980 U	1000 U
Acenaphthene	460 U	430 U	600 U	400 U	410 U
2,4-Dinitrophenol	1100 U	1000 U	1500 U	980 U	1000 U
4-Nitrophenol	1100 U	1000 U	1500 U	980 U	1000 U
Dibenzofuran	460 U	430 U	600 U	400 U	410 U
2,4-Dinitrotoluene	460 U	430 U	600 U	400 U	410 U
Diethylphthalate	460 U	430 U	600 U	400 U	410 U
4-Chlorophenyl-phenyl ether	460 U	430 U	600 U	400 U	410 U
Fluorene	460 U	430 U	600 U	400 U	410 U
4-Nitroaniline	1100 U	1000 U	1500 U	980 U	1000 U
4,6-Dinitro-2-methylphenol	1100 U	1000 U	1500 U	980 U	1000 U
N-nitrosodiphenylamine	460 U	430 U	600 U	400 U	410 U
4-Bromophenyl-phenylether	460 U	430 U	600 U	400 U	410 U
Hexachlorobenzene	460 U	430 U	600 U	400 U	410 U
Pentachlorophenol	1100 U	1000 U	1500 U	980 U	1000 U
Phenanthrene	460 U	430 U	600 U	400 U	410 U
Anthracene	460 U	430 U	600 U	400 U	410 U
Carbazole	460 U	430 U	600 U	400 U	410 U
Di-n-butylphthalate	460 U	430 U	600 U	400 U	410 U
Fluoranthene	460 U	430 U	600 U	400 U	410 U
Pyrene	460 U	430 U	600 U	400 U	410 U
Butylbenzylphthalate	460 U	430 U	600 U	400 U	410 U
3,3'-Dichlorobenzidine	460 U	430 U	600 U	400 U	410 U
Benzo(a)anthracene	460 U	430 U	600 U	400 U	410 U
Chrysene	460 U	430 U	600 U	400 U	410 U
bis(2-Ethylhexyl)phthalate	460 U	430 U	600 U	400 U	410 U
Di-n-octylphthalate	460 U	430 U	600 U	400 U	410 U
Benzo(b)fluoranthene	460 U	430 U	600 U	400 U	410 U
Benzo(k)fluoranthene	460 U	430 U	600 U	400 U	410 U
Benzo(a)pyrene	460 U	430 U	600 U	400 U	410 U
Indeno(1,2,3-cd)pyrene	460 U	430 U	600 U	400 U	410 U
Dibenz(a,h)anthracene	460 U	430 U	600 U	400 U	410 U
Benzo(g,h,i)perylene	460 U	430 U	600 U	400 U	410 U

FILENAME: AKG04.SDG DATE: 06/28/95 TIME: 09:20 CADRE 2.10

PAGE: 2

Water units are reported in ug/L.  
Soil units are reported in ug/Kg.

## SEMIVOLATILE SOIL ANALYSIS

Table III Page 10 of 13

SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS, VT

LABORATORY: ENVSY

CASE NO: 23591  
SDG NO: AKG04

EPA SAMPLE NUMBER:	AKG14	AKG15			
SAMPLE LOCATION:	SD-04	SD-05			
LABORATORY SAMPLE NUMBER:	95051118	95051119			
SAMPLE TYPE:	Routine Sample	Routine Sample			
MATRIX/ANALYSIS:	SOIL/LOW	SOIL/LOW			
DILUTION FACTOR:	1.0	1.0			
DATE SAMPLED:	05/17/95	05/17/95			
DATE EXTRACTED:	05/22/95	05/22/95			
DATE ANALYZED:	06/06/95	06/06/95			
PERCENT MOISTURE:	32	43			
BNA					
Phenol	490 U	580 U			
bis(2-Chloroethyl) ether	490 U	580 U			
2-Chlorophenol	490 U	580 U			
1,3-Dichlorobenzene	490 U	580 U			
1,4-Dichlorobenzene	490 U	580 U			
1,2-Dichlorobenzene	490 U	580 U			
2-Methylphenol	490 U	580 U			
2,2'-oxybis(1-Chloropropane	490 U	580 U			
4-Methylphenol	490 U	580 U			
N-Nitroso-di-n-propylamine	490 U	580 U			
Hexachloroethane	490 U	580 U			
Nitrobenzene	490 U	580 U			
Isophorone	490 U	580 U			
2-Nitrophenol	490 U	580 U			
2,4-Dimethylphenol	490 U	580 U			
bis(2-Chloroethoxy) methane	490 U	580 U			
2,4-Dichlorophenol	490 U	580 U			
1,2,4-Trichlorobenzene	490 U	580 U			
Naphthalene	490 U	580 U			
4-Chloroaniline	490 U	580 U			
Hexachlorobutadiene	490 U	580 U			
4-Chloro-3-methylphenol	490 U	580 U			
2-Methylnaphthalene	490 U	580 U			
Hexachlorocyclopentadiene	490 U	580 U			
2,4,6-Trichlorophenol	490 U	580 U			
2,4,5-Trichlorophenol	1200 U	1400 U			
2-Chloronaphthalene	490 U	580 U			
2-Nitroaniline	1200 U	1400 U			
Dimethylphthalate	490 U	580 U			
Acenaphthylene	490 U	580 U			
2,6-Dinitrotoluene	490 U	580 U			
3-Nitroaniline	1200 U	1400 U			
Acenaphthene	490 U	580 U			
2,4-Dinitrophenol	1200 U	1400 U			
4-Nitrophenol	1200 U	1400 U			
Dibenzofuran	490 U	580 U			
2,4-Dinitrotoluene	490 U	580 U			
Diethylphthalate	490 U	580 U			
4-Chlorophenyl-phenyl ether	490 U	580 U			
Fluorene	490 U	580 U			
4-Nitroaniline	1200 U	1400 U			
4,6-Dinitro-2-methylphenol	1200 U	1400 U			
N-nitrosodiphenylamine	490 U	580 U			
4-Bromophenyl-phenylether	490 U	580 U			
Hexachlorobenzene	490 U	580 U			
Pentachlorophenol	1200 U	1400 U			
Phenanthrene	490 U	580 U			
Anthracene	490 U	580 U			
Carbazole	490 U	580 U			
Di-n-butylphthalate	490 U	580 U			
Fluoranthene	490 U	580 U			
Pyrene	490 U	580 U			
Butylbenzylphthalate	490 U	580 U			
3,3'-Dichlorobenzidine	490 U	580 U			
Benzo(a)anthracene	490 U	580 U			
Chrysene	490 U	580 U			
bis(2-Ethylhexyl)phthalate	490 U	580 U			
Di-n-octylphthalate	490 U	580 U			
Benzo(b)fluoranthene	490 U	580 U			
Benzo(k)fluoranthene	490 U	580 U			
Benzo(a)pyrene	490 U	580 U			
Indeno(1,2,3-cd)pyrene	490 U	580 U			
Dibenz(a,h)anthracene	490 U	580 U			
Benzo(g,h,i)perylene	490 U	580 U			

FILENAME: AKG04.SDG DATE: 06/28/95 TIME: 09:20 CADRE 2.10

PAGE: 3

Water units are reported in ug/L.  
Soil units are reported in ug/Kg.

CASE NO: 23591  
SDG NO: AKG04

SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS, VT

LABORATORY: ENVSY

EPA SAMPLE NUMBER:	AKG04	AKG05	AKG06	AKG07	AKG08
SAMPLE LOCATION:	SS-01	SS-02	SS-03	SS-04	SS-05
LABORATORY SAMPLE NUMBER:	95051108	95051109	95051110	95051111	95051112
SAMPLE TYPE:	Routine Sample	Routine Sample	Routine Sample	Routine Sample	Routine Sample
MATRIX/ANALYSIS:	SOIL/LOW	SOIL/LOW	SOIL/LOW	SOIL/LOW	SOIL/LOW
DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:	05/17/95	05/17/95	05/17/95	05/17/95	05/17/95
DATE EXTRACTED:	05/24/95	05/24/95	05/24/95	05/24/95	05/24/95
DATE ANALYZED:	06/21/95	06/21/95	06/21/95	06/21/95	06/21/95
PERCENT MOISTURE:	34	44	43	20	39
PES					
alpha-BHC	2.6 U	3.0 U		2.1 U	2.8 U
beta-BHC	2.6 U	3.0 U		2.1 U	2.8 U
delta-BHC	2.6 U	3.0 U		2.1 U	2.8 U
gamma-BHC (Lindane)	2.6 U	3.0 U		2.1 U	2.8 U
Heptachlor	2.6 U	3.0 U		2.1 U	2.8 U
Aldrin	2.6 U	3.0 U		2.1 U	2.8 U
Heptachlor epoxide	2.6 U	3.0 U		2.1 U	2.8 U
Endosulfan I	2.6 U	3.0 U		2.1 U	2.8 U
Dieldrin	5.0 U	5.9 U		4.1 U	5.4 U
4,4'-DDE	1.7 U	5.9 U		4.1 U	5.4 U
Endrin	5.0 U	5.9 U		4.1 U	5.4 U
Endosulfan II	5.0 U	5.9 U		4.1 U	5.4 U
4,4'-DDD	5.0 U	5.9 U		4.1 U	5.4 U
Endosulfan sulfate	5.0 U	5.9 U		4.1 U	5.4 U
4,4'-DDT	5.0 U	5.9 U		4.1 U	5.4 U
Methoxychlor	26 U	30 U		21 U	28 U
Endrin ketone	5.0 U	5.9 U		4.1 U	5.4 U
Endrin aldehyde	5.0 U	5.9 U		4.1 U	5.4 U
alpha-Chlordane	2.6 U	3.0 U		2.1 U	2.8 U
gamma-Chlordane	2.6 U	3.0 U		2.1 U	2.8 U
Toxaphene	260 U	300 U		210 U	280 U
Aroclor-1016	50 U	59 U		41 U	54 U
Aroclor-1221	100 U	120 U		84 U	110 U
Aroclor-1232	50 U	59 U		41 U	54 U
Aroclor-1242	50 U	59 U		41 U	54 U
Aroclor-1248	50 U	59 U		41 U	54 U
Aroclor-1254	50 U	59 U		41 U	54 U
Aroclor-1260	50 U	59 U		41 U	54 U

FILENAME: AKG04.SDG DATE: 06/27/95 TIME: 16:50 CADRE 2.10

PAGE: 1

Water units are reported in ug/L.  
Soil units are reported in ug/Kg.

## PESTICIDE/PCB SOIL ANALYSIS

Table III Page 12 of 13

CASE NO: 23591  
SDG NO: AKG04SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS, VT

LABORATORY: ENVSYS

EPA SAMPLE NUMBER:	AKG09	AKG10	AKG11	AKG12	AKG13
SAMPLE LOCATION:	SS-06	SS-07	SD-01	SD-02	SD-03
LABORATORY SAMPLE NUMBER:	95051113	95051114	95051115	95051116	95051117
SAMPLE TYPE:	Routine Sample	Routine Sample	Routine Sample	Routine Sample	Routine Sample
MATRIX/ANALYSIS:	SOIL/LOW	SOIL/LOW	SOIL/LOW	SOIL/LOW	SOIL/LOW
DILUTION FACTOR:	1.0	1.0	1.0	1.0	1.0
DATE SAMPLED:	05/17/95	05/17/95	05/17/95	05/17/95	05/17/95
DATE EXTRACTED:	05/24/95	05/24/95	05/24/95	05/24/95	05/24/95
DATE ANALYZED:	06/21/95	06/21/95	06/21/95	06/21/95	06/21/95
PERCENT MOISTURE:	28	23	45	18	20
PES					
alpha-BHC	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
beta-BHC	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
delta-BHC	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
gamma-BHC (Lindane)	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
Heptachlor	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
Aldrin	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
Heptachlor epoxide	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
Endosulfan I	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
Dieldrin	4.6 U	4.3 U	6.0 U	4.0 U	4.1 U
4,4'-DDE	4.6 U	4.3 U	6.0 U	4.0 U	4.1 U
Endrin	4.6 U	4.3 U	6.0 U	4.0 U	4.1 U
Endosulfan II	4.6 U	4.3 U	6.0 U	4.0 U	4.1 U
4,4'-DDD	4.6 U	4.3 U	6.0 U	4.0 U	4.1 U
Endosulfan sulfate	4.6 U	4.3 U	6.0 U	4.0 U	4.1 U
4,4'-DDT	3.1 U	4.3 U	6.0 U	4.0 U	4.1 U
Methoxychlor	24 U	22 U	31 U	21 U	21 U
Endrin ketone	4.6 U	4.3 U	6.0 U	4.0 U	4.1 U
Endrin aldehyde	4.6 U	4.3 U	6.0 U	4.0 U	4.1 U
alpha-Chlordane	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
gamma-Chlordane	2.4 U	2.2 U	3.1 U	2.1 U	2.1 U
Toxaphene	240 U	220 U	310 U	210 U	210 U
Aroclor-1016	46 U	43 U	60 U	40 U	41 U
Aroclor-1221	93 U	87 U	120 U	82 U	84 U
Aroclor-1232	46 U	43 U	60 U	40 U	41 U
Aroclor-1242	46 U	43 U	60 U	40 U	41 U
Aroclor-1248	46 U	43 U	60 U	40 U	41 U
Aroclor-1254	46 U	43 U	60 U	40 U	41 U
Aroclor-1260	46 U	43 U	60 U	40 U	41 U

FILENAME: AKG04.SDG DATE: 06/27/95 TIME: 16:50 CADRE 2.10

PAGE: 2

Water units are reported in ug/L.  
Soil units are reported in ug/Kg.

## PESTICIDE/PCB SOIL ANALYSIS

Table III Page 13 of 13  
SITE: BOISE CASCADE SOUTH LANDFILL  
SHELDON SPRINGS, VTCASE NO: 23591  
SDG NO: AKG04

LABORATORY: ENVSYS

EPA SAMPLE NUMBER:	AKG14	AKG15			
SAMPLE LOCATION:	SD-04	SD-05			
LABORATORY SAMPLE NUMBER:	95051118	95051119			
SAMPLE TYPE:	Routine Sample	Routine Sample			
MATRIX/ANALYSIS:	SOIL/LOW	SOIL/LOW			
DILUTION FACTOR:	1.0	1.0			
DATE SAMPLED:	05/17/95	05/17/95			
DATE EXTRACTED:	05/24/95	05/24/95			
DATE ANALYZED:	06/21/95	06/21/95			
PERCENT MOISTURE:	32	43			
PES					
alpha-BHC	2.5 U	3.0 U			
beta-BHC	2.5 U	3.0 U			
delta-BHC	2.5 U	3.0 U			
gamma-BHC (Lindane)	2.5 U	3.0 U			
Heptachlor	2.5 U	3.0 U			
Aldrin	2.5 U	3.0 U			
Heptachlor epoxide	2.5 U	3.0 U			
Endosulfan I	2.5 U	3.0 U			
Dieldrin	4.9 U	5.8 U			
4,4'-DDE	0.87 J	1.0 J			
Endrin	4.9 U	5.8 U			
Endosulfan II	4.9 U	5.8 U			
4,4'-DDD	4.9 U	5.8 U			
Endosulfan sulfate	4.9 U	5.8 U			
4,4'-DDT	4.9 U	5.8 U			
Methoxychlor	25 U	30 U			
Endrin ketone	4.9 U	5.8 U			
Endrin aldehyde	4.9 U	5.8 U			
alpha-Chlordane	2.5 U	3.0 U			
gamma-Chlordane	2.5 U	3.0 U			
Toxaphene	250 U	300 U			
Aroclor-1016	49 U	58 U			
Aroclor-1221	99 U	120 U			
Aroclor-1232	49 U	58 U			
Aroclor-1242	49 U	58 U			
Aroclor-1248	49 U	58 U			
Aroclor-1254	49 U	58 U			
Aroclor-1260	49 U	58 U			

FILENAME: AKG04.SDG DATE: 06/27/95 TIME: 16:50 CADRE 2.10

PAGE: 3

Water units are reported in ug/L.  
Soil units are reported in ug/Kg.

### **Data Summary Key**

- A - Acceptable data.
- J - The associated numerical value is an estimated quantity.
- U - The compound was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
- UJ - The compound was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- R - Reject data because quality control criteria were exceeded. The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

**ATTACHMENT B**

**Boise Cascade/South Landfill**

**Inorganic Sample Analytical Results  
CDM Federal Programs Corporation**

**May 17, 1995  
(sampling date)**

Site: Boise Cascade South Landfill  
 Laboratory: ChemTech Consulting Group  
 Disk: 6101012DV08  
 File: 23591mar.wk4

CLP INORGANIC ANALYSIS  
 CASE: 23591, SDG MAHF16  
 AQUEOUS ANALYTICAL RESULTS (ug/L)

Table II Page 1 of 3

Sample Location				GW-01	DW-01	DW-02	EB-SS	EB-SD	EB-GW	
Traffic Report Number				MAHF16	MAHF17	MAHF18	MAHF19	MAHF20	MAHF21	
Remarks						Duplicate of MAHF17	Equipment Blank	Equipment Blank	Equipment Blank	
Sampling Date				17-May-95	17-May-95	17-May-95	17-May-95	17-May-95	17-May-95	
Dilution Factor				1.0	1.0	1.0	1.0	1.0	1.0	
INORGANIC ANALYTES										
		IDL (ug/L)	CRDL (ug/L)							
Aluminum	P	25.0	200	8480	25.0 UJ	25.4 J	25.0 U	25.0 U	25.0 U	
Antimony	P	3.0	60	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	
Arsenic *	F	8.0	10	11.8 J	8.0 U	8.0 U	8.0 U	8.5	8.0 U	
Barium	P	1.0	200	102	55.9	53.9	1.0 U	1.0 U	1.0 U	
Beryllium	P	1.0	5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	
Cadmium	P	2.0	5	19.3	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	
Calcium	P	10.0	5000	27500	22000	21700	42.8	14.3	39.6	
Chromium	P	5.0	10	74.2	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	
Cobalt	P	2.0	50	3.8 J	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	
Copper	P	3.0	25	132	14.2	3.0 U	3.0 U	3.0 U	3.0 U	
Iron	P	30.0	100	25000	78.4 U	87.7 U	30.0 U	30.0 U	30.1 U	
Lead	F	3.0	3	31.1	14.6 U	3.0 U	3.0 U	3.0 U	5.4	
Magnesium	P	15.0	5000	9690	5970	5700	21.7	15.0 U	15.7	
Manganese	P	1.0	15	404	40.2	37.9	1 U	1.7	4.1	
Mercury	CV	0.2	0.2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	
Nickel	P	10.0	40	65.1	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	
Potassium	P	200.0	5000	5610	1030	1120	200 U	200 U	200 U	
Selenium	F	5.0	5	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	
Silver	P	3.0	10	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	
Sodium	P	10.0	5000	9130	37800	38400	61.9	31.3	58.8	
Thallium	F	8.0	10	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	8.0 U	
Vanadium	P	2.0	50	8.6	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	
Zinc	P	4.0	20	176 U	45.4 U	23.1 U	20.9	14.3	29.4	
Cyanide	AS		10	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	

F: Furnace  
 P: ICP/Flame AA  
 CV: Cold Vapor  
 AS: Semi-Automated  
 Spectrophotometric  
 Analysis

J - The associated numerical value is an estimated quantity.  
 U - The analyte was not detected. The associated numerical value is the analyte detection limit.  
 UJ - The analyte was not detected. The analyte detection limit is an estimated value.  
 R - The datum was rejected.  
 IDL - Instrument Detection Limit  
 CRDL - Contract Required Detection Limit

CLP INORGANIC ANALYSIS  
CASE 23591, SDG MAHF04  
SOIL ANALYTICAL RESULTS (mg/Kg)

Table II Page 2 of 3

Sample Location		SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	SS-07	SD-01	SD-02
Traffic Report Number		MAHF04	MAHF05	MAHF06	MAHF07	MAHF08	MAHF09	MAHF10	MAHF11	MAHF12
Remarks			DUPLICATE	DUPLICATE						DUPLICATE
Sampling Date		05/17/95	05/17/95	05/17/95	05/17/95	05/17/95	05/17/95	05/17/95	05/17/95	05/17/95
Percent Solid		73.2	53.4	55.9	80.4	60.0	70.3	75.7	62.2	79.7
Dilution Factor		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
INORGANIC ANALYTES										
Aluminum	P	7230	11100	10400	5460	14100	13300	3870	5090	4890
Antimony	P	0.82 U	1.1 U	1.1 U	0.75 U	1.0 U	0.85 U	0.79 U	0.96 U	0.75 U
Arsenic	F	5.6 UJ	6.9 UJ	8.3 UJ	3.5 UJ	3.7 UJ	6.2 UJ	5.1 UJ	5.1 UJ	5.9 U
Barium	P	31.1	85.4	75.9	16.1	67.2	87.4	11.5	28.6	12.9
Beryllium	P	0.27 U	0.37 U	0.36 U	0.25 U	0.33 U	0.28 U	0.26 U	0.32 U	0.25 U
Cadmium	P	0.55 U	0.75 U	0.72 U	0.50 U	0.67 U	0.57 U	0.53 U	0.64 U	0.50 U
Calcium	P	753	3690	3400	1750	1970	3850	1960	2650	1980
Chromium	P	9.0	20.1	18.4	12.4	22.2	23.6	10.9	15.5	12.9
Cobalt	P	3.1	10.4 J	10.0 J	4.8	9.7	11.0	5.2	4.3	5.0
Copper	P	9.3 J	47.6	47.2	7.2 J	22.7 J	20.2 J	16.0 J	18.9 J	10.5 J
Iron	P	12500	38600	36700	9050	19900	23300	12000	9050	10600
Lead	F	22.3	23.2	29.8	4.9	18.9	20.2	19.4	5.5	5.3
Magnesium	P	812	3070	2840	2320	2950	4720	2070	2050	2850
Manganese	P	72.7	580	534	120	437	627	175	163	125
Mercury	CV	0.14 U	0.19 U	0.18 U	0.12 U	0.17 U	0.14 U	0.13 U	0.16 U	0.13 U
Nickel	P	6.1 J	22.5 J	18.5 J	14.1 J	17.7 J	27.8 J	13.9 J	10.5 J	13.9 J
Potassium	P	149 J	675 J	578 J	331 J	685 J	1210 J	225 J	306	390
Selenium	F	1.4 U	1.9 U	1.8 U	1.2 U	1.7 U	1.4 U	1.3 U	1.6 U	1.3 U
Silver	P	0.82 U	1.1 UJ	1.1 UJ	0.75 U	1.0 U	0.85 U	0.79 U	0.96 U	0.75 U
Sodium	P	65.3 U	135 U	102 U	71.3 U	98.7 U	119 U	62.7 U	177 U	78 U
Thallium	F	2.2 U	3.0 U	2.9 U	2.0 U	2.7 U	2.3 U	2.1 U	2.6 U	2.0 U
Vanadium	P	19.7	20.6	18.6 J	9.6	21.9	26.5	11.0	12.2	10.3
Zinc	P	40.1	109	95.8	58.3	82.5	91.3	60.9	44.5	32.2
Cyanide	AS	1.4 U	4.8 J	7.0 J	1.2 U	1.7 U	1.4 U	1.3 U	1.6 U	1.3 U

Analytical Method

F Furnace

P ICP

CV Cold Vapor

AS Semi-Automated

Spectrophotometric

Analysis

Sample Results are reported on dry weight basis

J - The associated numerical value is an estimated quantity.

U - The analyte was not detected. The associated numerical value is the analyte detection limit.

UJ - The analyte was not detected. The analyte detection limit is an estimated value.

R - The datum was rejected.

Sample Location		SD-03	SD-04	SD-05		
Traffic Report Number		MAHF13	MAHF14	MAHF15		
Remarks		DUPLICATE				
Sampling Date		05/17/95	05/17/95	05/17/95		
Percent Solid		79.2	67.8	72.1		
Dilution Factor		1.0	1.0	1.0		
INORGANIC ANALYTES						
Aluminum	P	4990	6490	7350		
Antimony	P	0.76 U	0.88 U	0.83 U		
Arsenic	F	6.8 UJ	9.9 U	6.2 UJ		
Barium	P	14.6	49.2	38.9		
Beryllium	P	0.25 U	0.30 U	0.28 U		
Cadmium	P	0.51 U	0.59 U	0.55 U		
Calcium	P	1730	2730	1470		
Chromium	P	12.6	17.1	21.2		
Cobalt	P	4.8	8.5	17.6		
Copper	P	11.6 J	8.8 J	4.7 J		
Iron	P	9800	21900	9000		
Lead	F	4.5	11.3	9.3		
Magnesium	P	2930	3070	1480		
Manganese	P	128	555	178		
Mercury	CV	0.13 U	0.15 U	0.14 U		
Nickel	P	14.5 J	15.8 J	23.5 J		
Potassium	P	424	572	279		
Selenium	F	1.3 U	1.5 U	1.4 U		
Silver	P	0.76 U	0.88 U	0.83 U		
Sodium	P	89.6 U	92.1 U	54.7 U		
Thallium	F	2.0 U	2.4 U	2.2 U		
Vanadium	P	8.8	17.2	12.6		
Zinc	P	34.2	53.8	39.3		
Cyanide	AS	1.3 U	1.5 U	1.4 U		

Analytical Method

F: Furnace

P: ICP

CV: Cold Vapor

AS: Semi-Automated

Spectrophotometric

Sample Results are reported on dry weight basis.

J - The associated numerical value is an estimated quantity.

U - The analyte was not detected. The associated numerical value is the analyte detection limit.

UJ - The analyte was not detected. The analyte detection limit is an estimated value.

R - The datum was rejected.

## **Data Summary Key**

- A - Acceptable data.
- J - The associated numerical value is an estimated quantity.
- U - The analyte was analyzed for but was not detected. The associated numerical value is the sample quantitation limit.
- UJ - The analyte was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.
- R - Reject data because quality control criteria were exceeded. The data are unusable (analyte may or may not be present). Resampling and reanalysis is necessary for verification.